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Anyone wishing to change his mailing address should allow eight weeks notice. A copy of the address taken from an issue of the periodical should accompany the change-of-address request.

The President's Column

Rensis Likert

THE NEW INDEX TO THE JOURNAL

At the end of August, the National Science Foundation informed the Association that a grant would be awarded for the printing of an Index to the JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION. Planning with the printer was begun immediately and not long after you read these words the finished volume will be available. This index covers the years 1940 through 1955 (Volumes 35-50). This culminates a period of preparation and actual indexing which goes back several years.

Allen Wallis, who recently retired as Editor of the JOURNAL, was probably the first to urge actively that a new index be compiled. The cumulative index ended with the year 1939. The American Statistical Association was very fortunate in receiving a grant from the Ford Foundation for the indexing of Volumes 35-50, and this was undertaken under the direction of Boyd Harshbarger, head of the Department of Statistics at Virginia Polytechnic Institute. Dr. Harshbarger and his staff have done an outstanding job on the index. There are four main parts: an author index; a subject index; a book review index; and an index to selected mathematical charts and tables.

A special committee has served since the beginning of the whole project, with the two-fold purpose of acting as a supervisory body, as well as providing consultation in the broad areas covered by the index. The committee members are: William G. Cochran, Chairman; Raymond T. Bowman; Gertrude M. Cox; Churchill Eisenhart and W. Allen Wallis. Other ASA members were also consulted as needed.

The JOURNAL has always been the standard book of reference in statistics. The new index covers what must be considered some of the most fruitful years in statistical theory and applications since its founding. Starting just before the beginning of World War II and continuing through the first half of the 'fifties', this volume cross-classifies in convenient form for the researcher the articles from the JOURNAL in a period that reflects the tremendous new advances in the field during these years. Acceptance sampling and quality control, operations research and other management sciences, electronic computing and data processing techniques: these are some

(Continued on back cover)

NEWS 1959 ANNUAL MEETING — DISTRICT REPRESENTATIVE NOMINATIONS FOR 1960-61 — ASA TRAVEL GRANTS FOR 1960 MEETINGS — OTHER GRANTS, AWARDS, FELLOWSHIPS — NEWS OF STATISTICAL ACTIVITIES — JOB OPENINGS

1959 Annual Meeting

Plans for the 119th ASA Annual Meeting to be held at the Shoreham Hotel, Washington D. C. from December 27 to 30, 1959 are now nearly complete. The national office will shortly mail to members a pre-registration form, together with information about the convention and a post card for making hotel reservations. Members are urged to register by mail to avoid delay at the registration desk.

Other societies meeting at the same time in Washington and their headquarters hotels are:

American Association of University Teachers of Insurance (Washington)
American Economic Association (Sheraton-Park)
American Farm Economic Association (Sheraton-Park)
American Finance Association (Sheraton-Park)
American Marketing Association (Willard)
Biometric Society/ENAR (Shoreham)
Catholic Economic Association (Sheraton-Park)
Econometric Society (Sheraton-Park)
Industrial Relations Research Association (Mayflower)
Institute of Mathematical Statistics (Shoreham)
Regional Science Association (Sheraton-Park)

The complete program of the ASA, IMS and Biometric Society (ENAR) meetings is published elsewhere in this issue. A special session, arranged by President Rensis Likert and President-Elect Morris Hansen, is scheduled for three o'clock Sunday afternoon on "The Role of Statisticians and Statistical Methodology in Medical Research". The speaker at the session will be Dr. James A. Shannon, Director, National Institutes of Health, and the chairman will be Rensis Likert. This special session was arranged to bring to the attention of a broader public the role of statistics in medical science. A memorial session for William A. Ogburn is also scheduled for later Sunday afternoon. The Economic Outlook luncheon will be held jointly with the American Economic Association on Monday. Other sessions are being co-sponsored by the Institute of Mathematical Statistics and the Biometric Society (ENAR). The Presidential Address by Rensis Likert will be delivered on Tuesday evening, to be followed by an informal party. Tours to agencies and installations, including the Vanguard Computing Center, are being organized.

A booklet containing abstracts of the papers to be presented will again be available at the meeting. This booklet, which will contain the abstracts from the sessions of the three societies—ASA, IMS and Biometric Society (ENAR), can be obtained for $1.00 at the registration desk.

A list of the Local Arrangements Committee appeared in the April issue. Ernest Engquist, Jr., Director, Statistics Division, Internal Revenue Service, is chairman of the committee.

Placement Service at Annual Meeting

Arrangements have been made with the United States Employment Service for the District of Columbia, affiliated with the U.S. Employment Service, to operate a free placement office to serve American Statistical Association members attending the annual meetings in Washington, D.C. Association members seeking employment, and firms and institutions having position vacancies, are urged to avail themselves of this service.

If you are seeking employment you should—(a) register at the local office of your State Employment Service before December 11, 1959; (b) request the local E.S. office to forward your application to the USES for D.C. Professional Office in Washington; (c) activate your application by visiting the convention placement office immediately following completion of your convention registration, leaving the address and telephone number where you can be reached in Washington.

Firms and institutions having position vacancies should file a job description with local State Employment Service offices by December 11, and request that these be forwarded to the USES for D.C.

Members seeking employment, and firms and institutions seeking staff, may file their applications and orders upon arrival at the convention, if this has not been done earlier. However, a more efficient and satisfactory placement service will be provided if your application or order is placed before December 11 at the local office of your State E.S.

Be sure to activate your application or order by a visit to the placement office at convention headquarters as soon as possible after you have completed registration at the convention.

Nominations for District Representatives

The following persons have been nominated by the local chapters for District Representative to the Council of ASA for the two-year term 1960-61. One is to be elected from each district. The list of nominees for the other ASA offices was published in the June issue of THE AMERICAN STATISTICIAN. Ballots will be mailed to members before November 15.

District

1 New England States (except members of New York City Chapter)
R. J. D. Gillies, New Haven, Connecticut
Geoffrey Beall, Boston, Mass.

2 New York State (except New York City and members of that Chapter), Ontario, Quebec, Maritime Provinces
Robert E. Bechhofer, Ithaca, New York
Isadore Blumen, Ithaca, New York
Richard Freund, Rochester, New York

3 New York City, including members of the Chapter living in the metropolitan and commuting areas, and Puerto Rico
Arthur Brickner, New York, New York
John A. Griffin, New York, New York

4 New Jersey (except members of New York City Chapter), Pennsylvania, Delaware
Forman S. Acton, Princeton, New Jersey
John C. Griffiths, University Park, Pa.
Robert Hooke, Pittsburgh, Pa.
Daniel G. Horvitz, Philadelphia, Pa.

5 Maryland, District of Columbia, Metropolitan and Commuting Areas of Washington, D. C. in Northern Virginia
Ernest J. Engquist, Washington, D. C.
Benjamin J. Mandel, Baltimore, Maryland

6 Virginia (except as in 5), West Virgina, Kentucky, North Carolina, Tennessee, South Carolina, Georgia, Alabama, Florida
Herbert A. David, Blacksburg, Virginia

7 Ohio, Michigan
R. Gnanadesikan, Cincinnati, Ohio
Eugene K. Harris, Cincinnati, Ohio
Joseph Larson, Detroit, Michigan
Arthur S. Littell, Cleveland, Ohio

8 Indiana, Illinois, Wisconsin, Minnesota, Iowa, the eastern part of Missouri
David V. Huntsberger, Ames, Iowa
Palmer O. Johnson, Minneapolis, Minnesota
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William W. Tongue, Chicago, Illinois

9 Alberta, Manitoba, Saskatchewan, North Dakota, Montana, South Dakota, Wyoming, Nebraska, the western part of Missouri, Kansas, Colorado, Arkansas, Oklahoma, New Mexico, Mississippi, Louisiana, Texas
Robert Spears, Tulsa, Oklahoma
Stella Traweek, Austin, Texas

10 Alaska, British Columbia, Idaho, Washington, Oregon, Utah, Nevada, California, Arizona, Hawaii
Maurice I. Gershenson, San Francisco, California
John C. McKee, Santa Monica, California
Robert C. Schmitt, Honolulu, Hawaii

ASA Travel Grants for Attendance at International Conferences in 1960

The ASA Committee on International Conference Travel Grants invites applications from members of the Association for grants to assist in defraying travel costs for attendance at a number of international scientific meetings scheduled to be held in 1960. The following meetings have been suggested for consideration by the Committee in awarding travel grants for 1960:

International Statistical Institute, 32nd session, Tokyo, Japan, May 31-June 9, 1960;

Biometric Society, Pharmacology Symposium, Leyden, Netherlands, April 20-23, 1960;

International Association for Research in Income and Wealth, African Regional Conference, Africa, 1960 (exact date and place to be announced);

International Association for Research in Income and Wealth, Asian Regional Conference, Hong Kong, 1960 (exact date to be announced).

The Committee will consider applications for travel grants to attend one or more of these meetings, in accordance with the procedures indicated below. In addition, applications will be considered for travel grants to attend other international conferences within the scope of the ASA travel grant program which have not previously been brought to the attention of the Committee. The ASA program (which is financed by a three-year grant of $9,000 from the Carnegie Corporation of New York, as announced in the October 1957 issue of THE AMERICAN STATISTICIAN) is designed to assist in defraying travel expenses of American statisticians attending scientific meetings abroad in which they would otherwise be unable to participate.

Grants are awarded under the ASA program only to individual members of the American Statistical Association in the United States, Canada, or Mexico. The maximum amount of the individual grants will usually be the equivalent of the lowest round-trip airplane fare between a specified point in the United States and the place of the meeting.

Travel grants are awarded under the ASA program on the basis of criteria established by the Committee on International Conference Travel Grants, which reviews and decides upon all applications. The principal criterion considered is the ability of the applicant, in the judgment of the Committee, to contribute significantly to the purposes of the meeting for which the travel grant is sought. In judging relative value of potential contributions to the purposes of the meeting, the Committee takes into account the applicant's ability or opportunity to further his own research or scientific goals through attendance at the meeting; and the nature or purpose of the applicant's participation—e.g., whether to present a scientific paper, participate in a colloquium or symposium, serve as an organizer or chairman of a meeting or section, or serve as a designated representative of a scientific group or organization. Special consideration may be given to the constructive contributions which younger statisticians might make to the purposes of the meeting. As the funds available for grants under the program are limited, the Committee also takes into account other sources of financial assistance or free transportation likely to be available to the applicant, as well as the extent of the applicant's previous attendance at international meetings.

Applications for grants under the ASA program must be filed on forms prescribed by the Committee for the purpose. Copies of the application forms may be obtained from the offices of the American Statistical Association, 1757 K Street, N. W., Washington 6, D. C. In order to be considered for any meeting to be held during the calendar year 1960, completed applications must

be received at that address on or before January 15, 1960.

The travel grants to be awarded for attendance at meetings in 1960 will be the last to be made under the ASA program unless the grant from the Carnegie Corporation of New York is renewed or other sources of financial support for the program are found. The ASA Committee has recommended that the Association make every effort to obtain renewal of the initial three-year grant or seek other sources of support for the program. The Committee suggests that members of the Association, and particularly members who are in a position to assess the scientific benefits that might be derived from continuation of the program, make their views on the subject known by addressing letters to the Secretary-Treasurer for submission to the Board of Directors of the Association at its next meeting.

1960 ISI Session

The 32nd Session of the International Statistical Institute will be held in Tokyo, Japan, from May 31st to June 9th, 1960. A limited number of travel grants for attendance at the session will be available under the ASA travel grants program (see "ASA Travel Grants for Attendance at International Conferences in 1960", elsewhere in the News section of this issue). The provisional program, including names of the proposed organizers, is as follows:

SUBJECTS:	PROPOSED ORGANIZERS:
I. *Invited Papers Meetings*	
1. Economic growth and capital formation.	Y. Morita (Japan)
2. The deflation of national accounts.	W. R. Leonard (U.S.)
3. Statistics for market analysis.	G. M. W. Furst (Germany)
4. Statistics for social sciences.	M. C. A. P. Ksemsri (Thailand)
5. Statistics of economic active population.	C. F. Taeuber (U.S.)
6. Statistics as applied to insurance.	H. Cramer (Sweden)
7. Population dynamics, including optimum utilization of fisheries resources.	E. A. Cornish (Australia)
8. Statistical methodology for medical research.	A. Bradford Hill (United Kingdom)
9. Statistical methodology for biologists.	L. L. Cavalli-Sforza (Italy)
10. The planning of experiments.	W. J. Youden (U.S.)
11. Multivariate analysis.	M. S. Bartlett (United Kingdom)
12. Evaluation of census and sample surveys.	A. R. Eckler (U.S.)
13. Statistical decision functions.	T. Kitagawa (Japan)
14. Interval estimates.	D. Dugue (France)
15. Applied production and inventory control.	
16. The influence of errors of measurement in industrial statistics.	ISI Committee on Stat. in Industry and Technology
17. Information and communicaiton theory.	ISI Committee on Stat. in Physical Sciences
18. Stochastic processes and their applications to physical sciences.	
II. *One Paper Meetings*	
1. Methods for improving response.	W. Edwards Deming (U.S.)
2. Statistical study of measurement errors.	P. J. Delaporte (France)
3. Foundations of probability and statistical inference.	M. Musuyama (Japan)
4. Apparent anomalies and irregularities in maximum likelihood estimation.	C. R. Rao (India)
III. *Round Table Meeting*	
1. Population estimation in the Southeast Asian Countries.	Minoru Tachi (Japan)
IV. *Meetings for contributed papers*	

1960 Congress for Logic, Methodology and Philosophy of Science

An International Congress for Logic, Methodology and Philosophy of Science will be held at Stanford University, Stanford, California, U.S.A., from August 24 to September 2, 1960, under the auspices of the International Union for History and Philosophy of Science. Arrangements are being made for collaborating with the ASA in scheduling meetings. While the exact dates have not yet been fixed, the American Statistical Association will also be holding its annual convention at Stanford during the latter part of August.

The proceedings of the International Congress will be organized into the following eleven sections:

1. Mathematical logic.
2. Foundations of mathematical theories.
3. Philosophy of logic and mathematics.
4. General problems of methodology and philosophy of science.
5. Foundations of probability and induction.
6. Methodology and philosophy of physical sciences.
7. Methodology and philosophy of biological and psychological sciences.
8. Methodology and philosophy of social sciences.
9. Methodology and philosophy of linguistics.
10. Methodology and philosophy of historical sciences.
11. History of logic, methodology and philosophy of science.

The proceedings will consist of a number of invited addresses, in addition to brief contributed papers. The closing date for submission of abstracts of contributed papers is March 1, 1960.

Information about membership fees and other details of the Congress may be obtained by writing Professor Patrick Suppes, Serra House, Stanford University, Stanford, California, U.S.A.

Social Science Research Council Fellowships and Grants

The Social Science Research Council's fellowship and grant programs for the coming year embody some departures from previous policies and procedures. The most radical change affects the program of Faculty Research Fellowships, which will supplant both the previous program of the same title and the previous program of Faculty Research Grants. Awards will be made directly to individuals for periods not exceeding two years; part-time appointments for three-year periods will not be offered. These awards will be made to mature scholars of demonstrated research achievement without any age limitation. Stipends for periods of six months to a year

may not exceed $6,000, and the maximum award for research will be $12,000. Grants-in-Aid of Research in amounts up to $2,000 will continue to be offered to scholars who require funds for travel and other research expenses only. Applications must be submitted by November 2, 1959 for the first competition, and by February 1, 1960 for the second.

Predoctoral and postdoctoral Research Training Fellowships will be offered on the same basis as in the past to Ph.D. candidates and recent recipients of that degree who intend to make careers in research. The closing date for applications for these fellowships is December 1.

Several categories of specialized awards will also be offered to scholars of post-doctoral status. These include grants for Asian studies, for Latin-American studies, for Near and Middle Eastern studies, and for Slavic and East European studies offered jointly by the Social Science Research Council and the American Council of Learned Societies. Applications for these latter should be submitted to the American Council of Learned Societies, 345 E. 46th St., New York 17, by November 2 (January 4, 1960 in the case of the grants for Latin-American studies).

Finally, travel grants will be awarded to participants in several international conferences, including the 32nd session of the International Statistical Institute at Tokyo. The closing date for applications for these grants is December 1, 1959.

A brochure describing the several programs is available on request addresed to the Social Science Research Council Fellowships and Grants, 230 Park Avenue, New York 17, N. Y. Requests for application forms should indicate the candidate's age, place of permanent residence, present position or activity, degrees held and degree currently sought if any, the general nature of the proposed training or research, and the duration or amount of support desired. They should be made well in advance of the closing date for receipt of applications.

ASQC Officers and Convention Dates

New officers for the year 1959-60 were announced at the annual convention of the American Society for Quality Control held in Cleveland last May. Mr. C. E. Fisher continues as President. The complete list of officers is as follows:

President: C. E. Fisher, Bell Telephone Laboratories, Inc., New York City

Vice-Presidents: L. S. Eichelberger, A. O. Smith Corporation, Milwaukee

A. V. Feigenbaum, General Electric Co., New York City

J. Y. McClure, Convair, Fort Worth, Texas

Ellis R. Ott, Rutgers University, New Brunswick, N. J.

Executive Secretary: David S. Chambers, University of Tennessee, Knoxville

Treasurer: Allan M. Hull, United Airlines, San Francisco

Administrative Secretary: William P. Youngclaus, Jr., American Society for Quality Control, 161 W. Wisconsin Ave., Milwaukee

Jr. Past President: Leon Bass, General Electric Co., Cincinnati

Chairman, Editorial Board: Mason E. Wescott, Rutgers University, New Brunswick, N. J.

Future dates and places of the ASQC Annual Convention and Exhibition are:

May 24-26, 1960—Sheraton-Palace Hotel, San Francisco

May 22-24, 1961—Sheraton Hotel, Philadelphia

May 23-25, 1962—The Netherland-Hilton, Cincinnati

May 21-23, 1963—Hotel Sherman, Chicago

New Departments of Statistics

Departments of Statistics have recently been created at Florida State University and Kansas State University.

The Florida State University at Tallahasee, Florida, established a Department of Statistics effective July 1959. The initial faculty consists of Ralph A. Bradley, Chairman, John L. Bagg and Lonnie L. Lasman. Programs of study leading to the Bachelor of Science and Master of Science degrees in statistics are being initiated in the Fall 1959 semester and advanced graduate work will be developed in the near future. The Department of Statistics provides university-wide training and consulting. Inquiries regarding the program will be welcomed and some assistantships will be available for graduate students.

Effective July 1st, a Department of Statistics was created at Kansas State University in Manhattan, Kansas. This department and the Statistical Laboratory, which has existed for thirteen years, are under one head, Dr. H. C. Fryer. Other members of the department are Doctors Arlin M. Feyerherm and Stanley Wearden, and instructors Gary F. Krause and Robert S. Cochran. For a number of years, the Masters degree in statistics has been offered through the Department of Mathematics. The new Department of Statistics hopes to be in a position to offer the Ph.D. in statistics within a few years.

An announcement of the establishment of a Department of Statistics at the University of Wisconsin will probably also be made soon.

Studies in Mathematical Learning Theory

Edited by

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Chicago Postdoctoral Awards in Statistics

Awards for study in statistics by persons whose primary field is not statistics but one of the physical, biological, or social sciences to which statistics can be applied are offered by the Department of Statistics of the University of Chicago. The awards range from $3,600 to $5,000 on a nine months' basis or $4,400 to $6,000 on an eleven months' basis. The closing date for application for the academic year 1960-61 is February 15, 1960. Further information may be obtained from the Department of Statistics, Eckhart Hall, University of Chicago, Chicago 37, Illinois.

Educational Testing Service Psychometric Fellowships

The Educational Testing Service is offering for 1960-61 its thirteenth series of research fellowships in psychometrics leading to the Ph.D. degree at Princeton University. Open to men who are acceptable to the Graduate School of the University, the two fellowships each carry a stipend of $2,650 a year and are normally renewable. Fellows will be engaged in part-time research in the general area of psychological measurement at the offices of the Educational Testing Service and will, in addition, carry a normal program of studies in the Graduate School.

Suitable undergraduate preparation may consist either of a major in psychology with supporting work in mathematics, or a major in mathematics together with some work in psychology. However, in choosing fellows, primary emphasis is given to superior scholastic attainment and research interests rather than to specific course preparation.

The closing date for completing applications is January 1, 1960. Information and application blanks may be obtained from: Director of Psychometric Fellowship Program, Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.

Conference on Weather Modification Research

The Division of Mathematics of the National Academy of Sciences—National Research Council sponsored a Conference on the Design and Conduct of Research Programs in Weather Modification, with the support of the National Science Foundation, on May 1-3, 1959. A group of thirty scientists attended the Conference at Big Meadows Lodge, located on the Skyline Drive of the Shenandoah National Park, Virginia, approximately 80 miles southwest of Washington, D. C.

The Skyline Conference was under the general chairmanship of Dr. Samuel S. Wilks, Chairman, Division of Mathematics, NAS-NRC. The group consisted of meteorologists and statisticians invited from many parts of the country to explore the application of statistical methods to meteorological research programs in weather modification, to review and examine the problems which require solution, and to discuss approaches which might be most fruitful in arriving at solutions having a direct and important bearing on the future activities in fundamental research relevant to weather modification.

During the two and one-half days of the Conference, the group participated in informal sessions designed to inform and provoke discussions among the conferees on various aspects of cloud physics and precipitaton, such as the chemical, physical, and electrical phenomena of clouds and cloud-free air as well as the statistical evaluation and tests applicable to various cloud physics and weather modification programs. Of particular interest to statisticians was the session held on Friday evening, devoted to discussions of the statistical evaluations and tests which have been made or might be suitable for application to certain research programs. This session, under the leadership of Dr. Roscoe R. Braham, Jr., University of Chicago, raised issues of a scientific and interdisciplinary nature. The deliberations during this session revealed that both the meteorologists and statisticians have a considerable collaborative task ahead of them in designing and evaluating experiments in research programs concerned with weather modification.

The final session on Sunday morning was devoted to rounding out the sense of the conference on various major points, and formulating conclusions and recommendations which the conferees felt should be the nucleus of a report to appear in the fall on the proceedings of the conference. The experience of the Skyline Conference clearly indicates that the value of holding such "scientific retreats" lies in the opportunities it provides for scientists to meet and exchange views on the issues pertaining to the theme of the conference in an atmosphere of cordiality and informality.

Job Opportunities

The Biometrics Branch, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda, Maryland, has openings for analytical statisticians. Qualifications are undergraduate or graduate study in statistics, mathematics, or public health, and/or research or statistical experience in public health, medicine, demography, or social science. Appointments will be made from eligibles who qualify for the U. S. Civil Service register for analytical statistician (health and medicine), grade GS-9 or 11. Starting salaries range from $5985 to $7030 annually, depending upon training and experience. Interested persons should write to: Chief, Biometrics Branch, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda 14, Maryland.

The U. S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Maryland, has vacancies for Analytical Statistician (Engineering), GS-1530-9 and GS-1530-11, $5,985 per annum and $7,030 per annum. Interested persons should write to Mr. John P. Bauernschub, Chief, Employee Utilization Branch, Civilian Personnel Division, Army Chemical Center, Maryland.

International STATISTICAL ACTIVITIES

INTERNATIONAL STATISTICAL INSTITUTE

The **International Statistical Institute** has initiated the publication of a new abstracting journal, *International Journal of Abstracts, Statistical Theory and Methods*, the aim of which is to give complete coverage of developments in the field of statistical theory and new contributions to statistical method. This new journal will be quarterly and contain approximately 1000 abstracts per year. The first issue will appear in the course of 1959.

The Journal is prepared by an editorial organization under a General Editor in association with a Managing Editor for the American and Pacific Area. The General Editor is **Dr. Wm. R. Buckland,** who works in conjunction with the Research Techniques Unit of the London School of Economics. **Professor R. L. Anderson,** Institute of Statistics, North Carolina State College, will be the Managing Editor. The following experts have agreed to act as regional editors:

R. L. Anderson (North America); B. Colombo (Italy); M. da Silva Rodriguez (Central and South America); F. N. David (United Kingdom and Eire); D. Dugué (France and Switzerland); J. Gani (Australasia); B. V. Gnedenko (U.S.S.R.); H. M. Husein (Middle East), K. Matusita (Japan and China); J. Pfanzagl (Germany and Austria); C. R. Rao (India and Pakistan); A. Rényi (Eastern Europe); S. Rios (Spain and Portugal); H. O. A. Wold (Scandinavia).

The Journal will be published and commercially operated by Messrs. Oliver and Boyd Ltd., Tweeddale Court, Edinburgh. The annual subscription rate is £5 or $16.

—Dr. Wm. R. Buckland
General Editor
IJA-Statistical Theory

BRAZIL

The **Brazilian Statistical Society** has organized three study groups on matters of national statistical interest: social welfare statistics; industrial nomenclature; methodological and theoretical statistics. These groups will be directed by Messrs. Virgilio Gualberto, Ovídio de Andrade Junior, and João Lyra Madeira, respectively.

—Inter American Statistical Institute

CZECHOSLOVAKIA

The **Second Prague Conference on Information Theory, Statistical Decision Functions and Random Processes** was held in Liblice near Prague, from June 1 to June 6, 1959. Liblice is a small village, about an hour's ride (by car) north of Prague. The J. E. Purkyne Scientific Workers' House is located in Liblice; it is a beautiful baroque castle which belongs to the Academy of Sciences. The Czechoslovak Academy uses it for conferences and also as a summer resort for the academicians. The conference was sponsored by the Academy's Institute of Radio Engineering and Electronics. **Dr. Antonin Spacek** was the indefatigable chairman of the organizing committee whose energy and devotion contributed much to the success of the conference.

All foreign and many of the Czechoslovak participants were housed in the castle; some of the Czechoslovak mathematicians commuted by bus from Prague. The fact that all participants took their meals together and that most of them lived in the castle facilitated greatly the personal contacts and provided many opportunities for the informal discussion of problems of mutual interest. The more intimate character of a small specialized conference (such as this conference or the Paris Colloquium on Probability Theory held in 1958) is the reason for the increasing popularity of small specialized international colloquia.

There were about 30 foreign participants; these included mathematicians from England, France, Germany (East and West), Hungary, Poland, Rumania, Sweden, U.S.A., U.S.S.R.

The lectures presented to the Conference gave evidence of great activity in the field of decision theory, particularly among Czechoslovak mathematicians. It was remarkable to see the great interest in abstract mathematical topics among the staff of Institutes devoted primarily to Engineering Research. There were a number of papers on information theory and also on stochastic processes, one paper dealt with game theory. There is no room to give here an account of the contents of the papers; this is also not necessary since the Proceedings of the Second Prague Conference will be published soon by the Czechoslovak Academy of Sciences.

The participants at the meeting spent the three days from June 7 to June 9 in Prague. Various programs were arranged and there was also sufficient free time for sight-seeing.

—Prof. Eugene Lukacs
Catholic University

DOMINICAN REPUBLIC

The General Bureau of Statistics (DGE) has launched a new publication entitled *Boletín de Divulgaciones Estadísticas*. The journal will contain articles, commentaries, and information relating to statistical activities. The first issue is dated December 1958, and the *Boletín* will appear irregularly.

—Inter American Statistical Institute

FRANCE

The **Statistical Society of Paris** held nine meetings during 1958, at which the following papers were presented.

Rational localization of agricultural production (theoretical study). Joseph Klatzmann (January 15).

Generalization of Schuster's test to the case of autocorrelated series. Maurice Allais (February 19).

Mortality and excessive alcoholization. Sully Ledermann (March 19).

Research methods used for determination of the commune-dormitories of the Paris region. Marcel Brichler (April 16).

New method of analysis of the structure of purchasing power and inflationary pressure. Pierre Vinot (May 21).

Remarks on personal wealth in France (1908-1958). Georges Lanusse (June 18).

From the European Community to the Economic Association of Europe—statistical study. Charles Penglaou (October 15).

Statistical study of children's reading. Alfred Milhaud (November 19).

The referendum—a trial statistical study. Jacques Desabie (November 19).

A sample survey of upkeep expenditures for buildings. Jacques de Portzamparc (December 17).

—*Journal de la Société de Statistique de Paris*

MEXICO

The **Fourth National Statistical Meeting** was held in Mexico City in August 1958. The agenda of the Meeting included the following topics: problems of improving the collection of data and the compilation of current statistics at all levels from that of the Federal Government to that of private businesses; statistical methods; compilation of social and economic statistics; statistical training; statistics applied to scientific research; dissemination of statistical data.

The General Bureau of Statistics (DGE) published an extensive report, *Memoria de la IV Reunión Nacional de Estadística*, at the end of 1958.

—Inter American Statistical Institute

SPAIN

The **National Institute of Statistics** is publishing a new journal entitled *Estadística Española*, edited under the direction of Mr. D. Luis Ubach, Director General of Statistics. The first issue is dated October-December 1958.

Collaborating in the editorial management of the journal are: Professor don Valentin Andrés Alvarez, Dean of the Faculty of Political, Economic and Commercial Sciences, and Professors Cansado, Alcaide, and Azoriu (statistical theory), and Messrs. García Alvarez, Benlloch, and Sanchez Crespo (organization and methodology).

—*Trabajos de Estadística*, Madrid

UNITED KINGDOM

During its 1958-59 session, the **Royal Statistical Society** held eight Ordinary General Meetings, at which the following papers were presented.

The Long-Term Trend in the Size Distribution of Income. H. F. Lydall (November 19).

A Discussion on the Report of the Committee on the Supply of and Demand for Statisticians, opened by Professor E. S. Pearson (December 3).

The Determinants of Wage Inflation: United Kingdom, 1946-56. L. A. Dicks-Mireaux and J. C. R. Dow (December 18).

Production and Productivity Movements in the U. K. since 1900. K. S. Lomax (January 21).

The Comparison of Survival Curves. P. Armitage (February 18).

ERNIE—A Mathematical and Statistical Analysis. W. E. Thomson (March 18).

The Economics of Housing and Urban Development. P. A. Stone (April 15).

A Discussion on Simulation Studies of Industrial Operations, opened by Dr. P. V. Youle, Dr. K. D. Tocher, Mr. W. N. Jessop, and Mr. F. I. Musk (May 20).

—Royal Statistical Society

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FEDERAL STATISTICAL ACTIVITIES

Principal Statistical Budgets and Programs for Fiscal Year 1960

The recommendations for major statistical programs presented in Special Analysis I of the 1960 Budget document pertained to transfers of responsibilities for labor force and construction statistics as well as to strengthening specific statistical series. Final action by the Congress supported the transfers of responsibilities and provided $1.6 million of the increase requested in the regular budget of about $1.8 million for major current programs, and most of the budget request for periodic programs. Congressional action also added nearly $250,000 for specific statistical programs which had not been included in the Budget requests.

In addition to requests submitted last January in the regular budget for 1960, an amount of $1,050,000 was included in a supplemental request for 1960 submitted to the Congress in July, for extensive additions to the wage and productivity programs of the Bureau of Labor Statistics. Almost all of this request—$1,000,000—was approved by the Congress.

I. *Current Programs*

A brief summary of the changes in major current statistical programs is presented here by broad subject areas. The amounts available for 1959, the requests for 1960, and the amounts available for 1960 are summarized in the accompanying tables—Table 1 by broad subject area and Table 2 by agency.

Some of the increases shown from 1959 to 1960 are for additional cost items, such as increased postal rates and the extra day's pay in 1960, and do not represent any change in program. Also, the 1959 estimates in the 1960 Budget document included the amounts requested to cover pay increases in a 1959 appropriation bill, which was not passed until May. In many instances the amount actually passed in this bill was slightly less than the amount requested. The final figures for 1959 are therefore a little below the earlier estimates, and the increase from 1959 to the 1960 Budget estimate consequently greater. The description given here is limited to changes which affect the content of major statistical programs and does not cover changes resulting from increased costs, minor shifts within allocations, and other nonprogram adjustments.

Labor statistics.—Responsibility for the planning, guidance and publication of labor force statistics obtained from the Census Bureau's Current Population Survey was transferred, effective July 1, from the Bureau of the Census to the Bureau of Labor Statistics. Funds for this program are included in the BLS budget, beginning with fiscal year 1960. Under the new arrangements the Census Bureau will continue to collect the data through the Current Population Survey and to process the data for BLS on a reimbursable basis.

In the regular budget for 1960 the Bureau of Labor Statistics requested $158,000 for development of estimates of labor requirements for specific types of construction, to be used in estimating the impact of new construction programs on employment and in improving productivity statistics; and $252,500 for converting the current series on employment, hours, earnings, and industrial injuries to the revised Standard Industrial Classification. A smaller amount, about $20,000, was also requested for inclusion of Alaska in current reports on wages, employment and earnings, and strikes. All three projects were approved, with a slight reduction in the funds requested.

Table 1

Appropriations or Allocations for Principal Current Statistical Programs by Broad Subject Areas
(in thousands)

Area	1959 appropriation	1960 Budget estimate	1960 appropriation
Labor statistics	$ 6,880	$ 8,491 [1]	$ 8,410 [1]
Demographic statistics	5,877	5,992	5,984
Prices and price indexes	3,744	4,026	4,100 [2]
Production and distribution statistics	13,996	14,173	14,224 [3]
Construction and housing statistics	690	1,210	1,204
National income and business financial accounts	5,143	5,306	5,216
Total, major current programs	$36,330	$39,198	$39,138

[1] Includes supplemental appropriation: $1,050,000 requested; $1,000,000 approved.
[2] Includes $100,000 not included in the Budget estimate.
[3] Includes $143,000 not included in the Budget estimate.

The increase of $1,000,000 approved in the supplemental appropriation provides for expansion of the BLS productivity and wage programs. In the productivity area, data on output per man-hour for the economy as a whole and major sectors have been available annually, and the new funds will permit the BLS to augment this program, beginning in fiscal year 1960, by detailed studies primarily of 3- and 4-digit SIC industries. Exploratory work will also begin on the influence of changes in capital investment on productivity trends. In the area of wage statistics, the community wage survey program will be expanded from 20 to 80 metropolitan labor markets, in which annual surveys will be made of wages and related benefits, and will include collection of wage data for a selected group of white collar workers. Detailed occupational wage surveys, now made for about 8 to 10 industries annually, will be made for an additional 10 important industries annually. The monthly reports on the content of new wage settlements, which heretofore have been limited to union situations involving 1,000 or more employers, will be extended to include reports on the smaller union and the nonunion situations. Also, annual data will be collected on employer expenditures for major fringe benefits, and estimates of these costs will be published.

Demographic statistics.—No major changes will occur

in current programs in this area in 1960. The increase of about $88,000 in the Office of Education will be used for additional mechanical tabulation facilities and administrative costs.

Also of interest in this area is the separate appropriation (not included in the tables shown here) of $1.5 million to the Office of Education for matching grants to the States under Title X of the National Defense Education Act, for improvement of State educational statistics.

Prices and price indexes.—An increase of more than $200,000 in the BLS budget provides for improvements in the current Consumer Price Index, designed to enable the index to reflect price changes more accurately and more promptly. Another $100,000, not included in the budget request, was added to the BLS appropriation by the Congress for preparation of consumer price indexes for two cities in Alaska.

In addition to these increases for current programs, a separate appropriation was requested and granted for preparatory work by the BLS on a complete revision of the Consumer Price Index, as described below under "Periodic Programs."

Production and distribution statistics.—A requested increase of $92,000 in funds for the Census Bureau to improve the quality of foreign trade statistics was approved by the Congress. A total of $143,000 not included in the budget estimate was added by the Congress to the appropriation for the Agricultural Marketing Service, for specific projects in the program of crop and livestock estimates.

Construction and housing statistics.—Consolidation of responsibility for the construction statistics program in the Bureau of the Census became effective July 1. Funds previously appropriated for this program to the Bureau of Labor Statistics ($352,000) and the Business and Defense Services Administration ($100,000) are now in the Census Bureau budget.

An increase of $471,500 was requested and approved in the Census Bureau budget to provide for improvement and expansion of the construction statistics program. With the new funds made available in fiscal year 1959 for construction statistics, the increases for 1960 mean that a little more than $1 million is now available in the Bureau of the Census for the consolidated construction statistics program. The program this year will include: improvements in the current monthly series on housing starts; development of more accurate estimates of the month-to-month rate of activity in selected types of construction; work on construction cost indexes; and initiation of quarterly estimates of expenditures for alterations, additions, maintenance and repairs of residential properties. (See separate article below on "1960 Program for Construction Statistics" for further details.)

National income and business financial accounts.—Increases of nearly $150,000 in the 1960 appropriation for the Office of Business Economics will make possible, after preparatory work has been completed, annual estimates of real net product by industry for about 10 major industrial divisions of the economy, with some additional detail for manufacturing; and developmental work on estimation of purchases and sales among industries. The increase also provides for detailed tabulation and analysis of results of the comprehensive survey of U. S. private investments abroad.

The increase in the area of "National income and business financial accounts" was offset in part by a decrease of $80,000 in the 1960 allotment to the statistical reporting program of the Internal Revenue Service.

Table 2

Appropriations or Allocations for Principal Current Statistical Programs, by Agency (in thousands)

Agency	1959 appropriation	1960 Budget estimate	1960 appropriation
Department of Agriculture			
Agricultural Marketing Service—			
Economic and statistical analysis	$ 1,633	$ 1,643	$ 1,633
Crop and livestock estimates	6,303	6,334	6,436 [1]
Agricultural Research Service—			
Farm economics research	2,954	2,967	2,942
Department of Commerce			
Bureau of the Census	8,665	8,720	8,674
Office of Business Economics	1,257	1,405	1,400
Department of Health, Education, and Welfare			
Office of Education—			
Educational Statistics Branch	667	755	755
Public Health Service—			
National Office of Vital Statistics	1,620	1,624	1,624
Public health methods and reports	2,080	2,070	2,070
Department of Labor			
Bureau of Labor Statistics	7,990	10,515 [2]	10,520 [3]
Treasury Department			
Internal Revenue Service—			
Statistical reporting	2,730	2,730	2,650
Federal Trade Commission			
Financial reports	204	204	204
Securities and Exchange Commission			
Operational and business statistics	227	231	231
Total, major current programs	$36,330	$39,198	$39,138

[1] Includes $143,000 not included in 1960 Budget estimate.

[2] Includes $1,050,000 in supplemental request for 1960.

[3] Includes $1,000,000 in supplemental appropriation for 1960; and $100,000 in regular 1960 appropriation not included in Budget estimate.

II. *Periodic Programs*

The 1960 budget contained requests for three periodic programs—censuses, for which costs fluctuate widely from year to year, and special nonrecurring projects. Final action on these requests is shown in table 3.

1958 Censuses of Business, Manufactures and Mineral Industries.—Collection of data for the 1958 Censuses of Business, Manufactures, and Mineral Industries was substantially completed in fiscal year 1959. The funds appropriated for 1960 provide for completing the collection of data, processing the data, and a large part of the tab-

Table 3

Appropriations for Periodic Programs
(in thousands)

	1959 appropriation	1960 Budget estimate	1960 appropriation
Department of Commerce			
Bureau of the Census—			
1958 Censuses of Business, Manufactures and Mineral Industries	$ 7,416	$ 6,049	$ 6,000
18th Decennial Census	7,351	86,500	86,500
Department of Labor			
Bureau of Labor Statistics—			
Revision of Consumer Price Index		230	230
Total, periodic programs	$14,767	$92,779	$92,730

ulating work. Extensive use will be made of electronic computers.

In the subsequent supplemental appropriation act for 1960 the Congress authorized a transfer of $175,000 from this appropriation to the Business and Defense Services Administration, for expenses of the Interagency Textile Committee. This committee was established at the request of the President to study and recommend measures designed to assist the domestic textile industry.

18th Decennial Census.—The 18th Decennial Census includes the censuses of population, housing, and agriculture.

For the agriculture census, field enumeration will begin in October 1959, by approximately 30,000 enumerators and 2,000 crew leaders. About half the office processing for this census will be completed in fiscal year 1960.

For the population and housing censuses, field enumeration will be conducted in April 1960 by approximately 160,000 enumerators and 10,000 crew leaders. For the 25 percent sample of households from which additional questions will be asked, self-enumeration is planned for use in most areas. Field enumerators will record the data on Fosdic (film optical sensing device for input to computers) documents. From microfilms of these documents, the Fosdic machine will automatically record the information on magnetic tape which will be used in tabulating the data on electronic computers. In fiscal year 1960 the Census Bureau will collect the data and complete about 10 percent of the processing of the Fosdic questionnaires and preparation of magnetic computer tapes.

Revision of Consumer Price Index.—The separate appropriation of $230,000 to the Bureau of Labor Statistics will permit work to begin on a 5-year program for complete revision of the Consumer Price Index. Activity in this area in fiscal year 1960 will be restricted to planning and testing of schedule designs, methods and procedures, and recruiting and training of additional staff.

—Raymond T. Bowman,
Assistant Director for Statistical Standards,
Bureau of the Budget

1960 Program for Construction Statistics

Consolidation of responsibility for the Federal Government's program of construction statistics in the Bureau of the Census became effective July 1, in accordance with the agreement among the Secretaries of Labor and Commerce and the Director of the Bureau of the Budget announced in November 1958. Subsequent to that agreement an appropriation totaling $1,000,000 has been made to the Bureau of the Census for construction statistics in the fiscal year 1960—almost double the combined amounts available last year in the Bureau of the Census, Bureau of Labor Statistics, and Business and Defense Services Administration. Within the Census Bureau, overall responsibility for the work on construction statistics has been assigned to the newly established Construction Statistics Office.

The data compiled by the Census Bureau are published monthly by the Bureau in three series of *Construction Reports:*

C20 Nonfarm Housing Starts
C30 Value of New Construction Put in Place
C40 New Dwelling Units Authorized by Local Building Permits

These series, which are available without charge for the time being, present the data formerly issued as monthly press releases by the Bureau of Labor Statistics and the Business and Defense Services Administration. The data will also be published monthly by the BDSA in *Construction Review* (formerly a joint publication of the BLS and BDSA), which will continue to present the more detailed information on housing starts, value of construction put in place, and building permits which it has previously contained.

An immediate objective of the Bureau of the Census under its new responsibilities is to maintain the existing series of construction data. In general, pending the introduction of revisions, the series will continue to be compiled and issued as they were by the BLS and the BDSA. In addition, the Census Bureau will re-examine the existing series and expects in the longer run to introduce improvements to increase their accuracy and enlarge their usefulness as measures of construction in the United States.

Initial steps being taken toward ultimate improvement of the construction series relate to the data on housing starts. First priority has been given to establishing a new field survey of housing starts in areas where no building permits are required, replacing the former BLS survey in non-permit areas which was discontinued at the end of June. Pretests of method for the new survey were undertaken in May and June, and an experimental survey in 70 areas was initiated in August. It is expected that the experimentation can be completed and a new current series established by about the end of 1959. By adopting concepts corresponding as closely as possible to those used in the decennial census of housing, the new survey is intended ultimately to result in much closer agreement between the monthly housing starts series

and the censuses of housing and national housing inventories than has been possible in the past. When the new series is introduced, the necessary overlaps with the previous series will be provided to facilitate comparison with past periods. Field surveys of residential construction will later be extended into permit areas to measure the timing and extent of use of permits and (though not necessarily in the present year) to assess the volume of housing construction which takes place in permit areas without being reported through the building permit system.

Other objectives of the construction statistics program for the current fiscal year include establishment of a quarterly series on expenditures for residential additions, alterations, maintenance and repairs, covering both owner-occupied and tenant-occupied properties. It is also planned to introduce improvements into selected components of the monthly series on value of construction put in place, particularly the private building component.

—Samuel J. Dennis, Chief
Construction Statistics Office, Bureau of the Census

Review of Price Indexes and Statistics

Under contract with the Bureau of the Budget, completed early in July, the National Bureau of Economic Research has agreed to undertake an examination and appraisal of Federal statistical programs dealing with prices and price indexes and to recommend improvements or additions which may be needed for more effective analysis. The price programs to be studied will include, although not be limited to, the Consumer Price Index and Wholesale Price Index of the Bureau of Labor Statistics; The Indexes of Prices Paid and Received by Farmers of the Agricultural Marketing Service; and the price collections related to these indexes which are useful for other purposes.

The scope of the review will include uses of the price indexes; concepts and structure of existing indexes; timing of the collection and publication of the data; specification and collection problems; introduction of prices of new commodities and services; program of revisions in indexes; use of probability methods in collection of prices; consumer expenditure surveys; and continuing research in price index methodology. The review will take into account the needs of the general public as well as those of the Government. Attention will be given to the needs for data reflecting current economic conditions and basic information required for meaningful historical analyses and studies of price and cost relationships. Some attention will also be given to special problems resulting from use of the indexes for wage adjustments and price supports.

The review will be conducted by a Price Statistics Review Committee to be appointed by the National Bureau of Economic Research. The committee will be broadly representative of professional interests in the fields of prices and price index numbers and be expert from the point of view of the statistical problems—theoretical and practical—of price collection and index number construction, as well as the uses of prices and price indexes in economic analysis.

The final report, to be submitted to the Bureau of the Budget by October 1, 1960, will set forth the findings of the review and any recommendations for changes, including recommended improvements and additions to the indexes as well as changes affecting the accuracy and timing of component series.

—Raymond T. Bowman,
Assistant Director for Statistical Standards,
Bureau of the Budget

Among Recent Publications—

1959 Statistical Abstract of the United States, issued by the Bureau of the Census, Department of Commerce. Statistical yearbook presenting economic, social and political data from a wide variety of governmental and private sources. The 1959 edition contains 1,227 tables (including 77 not contained in previous issues), 44 charts, a 42-page alphabetical subject index, and a 40-page bibliography of statistical sources. Brief text summations precede each of the 34 separate subject sections. Most of the data are national in scope, although more than 200 tables present statistics for regions and States, and a small number of tables show figures for cities and standard metropolitan statistical areas. Available at $3.50 a copy (1042 pages) from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Seasonal Variations of Births in the United States, 1948-54, issued by the National Office of Vital Statistics, Public Health Service, Department of Health, Education, and Welfare. Focuses attention on the differences in the seasonal pattern of the birth rate between color groups and among geographic areas in the United States, and discusses changes in the seasonal pattern over time. The study presents basic data on registered live births by month of occurrence, race, and geographic area, adjusted for varying numbers of days per month. Available without charge from the National Office of Vital Statistics, Public Health Service, Washington 25, D. C.

Methodology of the Survey of Consumer Expenditures in 1950, published by the Wharton School of the University of Pennsylvania. First in a series of research studies being made as part of the University's Consumer Expenditures Study under a grant from the Ford Foundation, following the 18-volume series of statistical reports on the BLS 1950 consumer expenditure survey which was in published in 1956. This first volume of the research series, by Helen Humes Lamale of the Bureau of Labor Statistics, provides the historical background of the survey, a detailed description of the technical and administrative aspects of the study, and an appraisal of the findings. Available at $6.50 a copy from Consumer Expenditures Study, E-4 Dietrich Hall, University of Pennsylvania, Philadelphia 4, Penna.

Population and Labor Force Projections for the United States, 1960-1975 (BLS Bulletin No. 1242), issued by the Bureau of Labor Statistics, Department of Labor. Indicates the future size and age-sex composition of the

work force, and contains estimates of the number of part-time and full-time workers in future years. Methods of preparing the projections are discussed in detail. The projections are based on an analysis of long-term trends in population and labor force participation rates by age and sex, taking into account such variables as school enrollment, retirement age and, for women, marital status and presence or absence of children in the home as well as the increasing tendency for women to work outside the home. Available at 40 cents a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Indexes of Output Per Man-Hour for Selected Industries, 1919 to 1958, issued by the Bureau of Labor Statistics, Department of Labor. Presents indexes for 7 nonmanufacturing industries (5 mining—anthracite, bituminous coal, copper, iron, and lead and zinc; railroad transportation; and telegraph) and 15 manufacturing industries (beet sugar; canning, preserving and freezing; cement; clay construction products; coke group; candy and other confectionery products; flour and other grain mill products, glass containers; hosiery; malt liquors; paper and pulp; primary smelting and refining of copper, lead and zinc; basic steel; synthetic fibers; and tobacco products). The indexes are presented, where available, for the years 1919, 1929, 1939, and 1947 through 1958. Supersedes the release of October 1957 which presented indexes for the same industries. Available without charge from the Bureau of Labor Statistics, Washington 25, D. C.

Trends in Building Permit Activity (BLS Bulletin No. 1243), issued by the Bureau of Labor Statistics, Department of Labor. Comprehensive record of the Department of Labor's work in this area of construction statistics from 1920, when BLS began its system of voluntary reporting by local building permit officials, to 1959 when responsibility for construction statistics was consolidated in the Department of Commerce. Designed as a research tool and handbook for users of construction statistics, the report presents the basic data for maintaining the continuity of the building permit series since its inception, and detailed historical tabulations of building construction authorized in each city with a population of 100,000 or more. Available at 65 cents a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Health Statistics from the U. S. National Health Survey, issued by the Public Health Service, Department of Health, Education, and Welfare. Additional reports in Series B (Results from the Household Interviewing):

Series B 9, "Impairments, by Type, Sex, and Age, United States, July 1957-June 1958," presenting estimates of impairments in the civilian noninstitutional population of the United States. For 11 categories of impairments, figures are shown by number of impairments, rate, percent distribution, number and percent caused by injury, number and percent involving bed disability, medical care status, and major activity, age and sex of impaired persons. (25 cents)

Series B 10, "Disability Days, United States, July 1957-June 1958," with basic data on days of restricted activity including bed disability and days lost from work or school because of illness or injury. Estimates of numbers and rates of these types of disability days are given for the total population and for various sex, age and residence subgroups. Data are also shown according to major activity of the person, family income, and calendar quarter. (40 cents)

Copies of these reports may be purchased at the prices indicated from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

GOVERNMENT OF CANADA STATISTICAL ACTIVITIES

DBS Standard Commodity Classification

Volume 1 of the *Standard Commodity Classification* of the Dominion Bureau of Statistics is now available. This volume contains the classification structure and an introduction outlining the principles upon which it is based. Two additional volumes to be issued soon will contain a Classified Index and an Alphabetical Index.

The Standard Commodity Classification has been in preparation for a number of years. A committee was formed in DBS in 1951 with the objective of drawing up such a classification to coordinate commodity statistics obtained from different sources. The principal sources in mind were statistics of imports and exports, shipments of Canadian manufacturers, materials and supplies used by industry and wholesale price series. Although there has been some coordinating activity in this field in the past, the various classification systems are not consistent, which makes it difficult to relate data obtained from one survey with those from another. In addition, the classifications are of varying quality and with the rapid industrial developments that have taken place, especially since the war, they are obsolescent.

The schedules used for the annual Census of Industry are being revised in line with the standard classification structure which will assure that the commodity designations on schedules for difficult industries are consistent.

The implementation of the standard classification in External Trade Statistics give rise to particular problems. Operational difficulties are particularly pressing when monthly tabulations are required and the changeover must be made at the beginning of a calendar year because annual totals are derived from the monthly tables. In the case of imports, the classification problem is complicated by the Customs Tariff. Groupings that are useful for revenue purposes do not necessarily correspond with those desired for economic analysis and, therefore, the purely commodity classification must be divorced from the tariff. Where necessary, tabulations

by tariff item can be made separately from those by commodity.

Canadian imports consist largely of manufactured goods and the range of commodities imported is much greater than the range exported. Exports are mainly materials either in a crude state or fabricated. Thus the problem of implementing the classification for exports is less difficult than for imports. Present plans call for the introduction of the new classification in exports beginning January 1, 1960 and in imports beginning January 1, 1961.

Interest in the development of the new classification became widespread over the years. As the project became known, many industry associations and groups offered assistance in their particular fields and a great deal of help was obtained from them. This has improved the classification scheme immeasurably and it is expected that similar consultations will be used to keep the classification up-to-date.

The scheme consists of five major sections as follows: Live Animals; Food, Feed, Beverages and Tobacco; Crude Materials, Inedible; Fabricated Materials, Inedible; End Products, Inedible. Within these sections there are some 80 divisions, 500 groups, and 5,600 classes. The indexes comprising Volumes 2 and 3 contain some 50,000 commodity terms and parallel designations.

—N. L. McKellar,
Consultant on Classifications.

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Family Expenditure Surveys

A continuing program of small-scale sample surveys of family expenditure was initiated in 1953 and surveys were taken in 1953, 1955 and 1957. This program of surveys was designed to permit continuous review of the weighting system of the Consumer Price Index, to build up a body of expenditure data for market analysis and other uses, and to provide continuing experience on survey techniques and analysis.

Because of the restrictions applying to the Consumer Price Index, the surveys were restricted to families in larger urban areas with specified family type and income characteristics. Eight types of families of two to six persons were included in the sample, and the income range was adjusted in successive surveys. (1953, $1800-$6500; 1955, $2000-$6500; 1957, $2500-$7000).

For each survey year the program consisted of first, a series of twelve monthly surveys of food expenditure detail in five cities, and second, an annual recall survey covering all aspects of the family budget in the same twelve-month period. For all surveys families were selected by systematic sampling from a list previously drawn for the Labour Force Survey sample. In the 1953 and 1955 food surveys a different sample of about 200 families was surveyed each month. In 1957, a semi-panel type of survey was introduced in which families were asked to participate for a maximum of three two-week periods in three successive months, the purpose being to study month-to-month expenditure changes for identical groups of families. A new sample of about 125 families was drawn each month so that the total of 1750 families observed in 1957 was less than in previous surveys, but a larger number of family records, averaging about 300 a month, was obtained. A minimum of income information was obtained.

Surveys of the complete budget in 1953 and 1957 covered about 1000 families. Cities covered numbered five in 1953, eight in 1955 (including a separate survey in St. John's, Newfoundland), and nine in 1957. Each survey incorporated detailed questions concerning income and changes in assets and liabilities.

In 1959 no monthly surveys were undertaken but a complete budget survey of wider scope is planned for the early months of 1960. Present plans call for complete budget surveys of approximately 1800 families to collect expenditure data over a wider urban area, without family income and type restrictions.

Results of the 1953 and 1955 surveys have been published as listed below. Information from the 1957 surveys is now being prepared for publication.

D.B.S. Catalogue No.			
62-509	City Family Expenditure, 1953	48 pp.	$0.50
62-510	City Family Expenditure, 1955	79 pp.	1.00
62-511	Urban Family Food Expenditure, 1953	28 pp.	0.25
62-512	Urban Family Food Expenditure, 1955	31 pp.	0.50

—Isabel McWhinney,
Prices Division—
Dominion Bureau of Statistics

Recommendations on Availability of Federal Statistical Materials to Nongovernmental Research Workers

The ASA Advisory Committee to the Bureau of the Budget on Statistical Policy has transmitted to the Office of Statistical Standards of the Bureau of the Budget a statement of principles with respect to the availability of Federal statistical materials to nongovernmental research workers. Members of the Committee are: Ralph J. Watkins, Chairman, William G. Cochran, Gertrude Cox, E. Dana Durand, Walter Hoadley, Jr., Howard L. Jones, William R. Leonard, Rensis Likert, Isador Lubin, William F. Ogburn, Frederick F. Stephan, Willard L. Thorp and Samuel S. Wilks. The preparation of the statement reflects both the recurrent expression of interest by nongovernmental research workers in access to Federal statistical materials and the interest of Federal statistical officials in the formulation of general policies in this area. It was circulated to the statistical agencies for comments and revisions were made in accordance with the suggestions received. In transmitting the statement the Advisory Committee recommended that the Office of Statistical Standards continue its study of the problems involved and the practices of the agencies in making Federal statistical materials available to nongovernment research workers, so that the statement of principles might be reviewed from time to time and revised if necessary.

The OSS is circulating this set of principles to Federal statistical agencies for their guidance. In keeping with the request of the Committee OSS will maintain a continuing interest in and concern for the adequacy of agency practices to meet the legitimate needs of scholars for access to unpublished statistical materials and the maintenance of adequate rules protecting the confidentiality of respondents to Federal statistical requests.

The statement of principles is as follows:

"I. Federal statistical and administrative data-collection programs often produce records capable of valuable statistical analysis beyond that which can or should be carried out by the collecting agency or any other agency of the Federal Government. In order that the optimum benefit may be obtained from Federal data-collection activities it should be the policy of the Federal Government to allow and to encourage the further analysis of these materials, under appropriate arrangements, by or on behalf of nongovernmental research workers.

II. Although some general principles may be offered for the guidance of agencies with such statistical materials in making them available for further processing, each such agency must determine and assume responsibility for its policies and procedures in the light of the nature of its program and data and the demands for its data.

III. No agency should enter into any arrangement for the supplementary processing of statistical materials, regardless of whether reimbursement is provided, which will interfere with the regular statistical program of the agency.

IV. In general, requests for further analysis of Government data should be met as fully as possible by making special tabulations to the specifications of outside users.

1. While a priority should be given to bona fide research uses in the general public interest, special tabulations should be permissible for all legitimate uses, both public and private, including, for example, marketing studies.
2. The same rules for protecting confidentiality of individual responses must apply to special tabulations as are applied to the regular tabulation program.
3. The agency should make only such special tabulations as appear to it to be justified in the light of the limitations of the data when the tabulations are to be available for general use or possible publication. Less exacting standards are permissible only when the data are not to be published but used for special analysis by competent analysts fully aware of the limitations.
4. To the extent that special tabulations are deemed to serve a special, as distinguished from the general public, interest, the full costs shall be charged to the sponsors of the tabulation.
5. Special tabulations should be in the public domain, available for publication by both the Federal agency and the outside sponsor, except as provided in IV, 3, above.

V. Research needs which cannot be adequately served by special tabulations can under proper circumstances be met by allowing nongovernmental workers to work with the raw materials, work sheets and other intermediate materials within the agency.

1. Such an arrangement is appropriate for research projects in the general public interest which would not be carried out without private sponsorship.
2. The agency should take appropriate steps to insure that candidates for this privilege meet appropriate standards of competence and integrity.
3. The agency should expect to instruct such workers as to the source, characteristics and limitations of the data and to cooperate with them, but it may properly set reasonable limits on the extent to which its own staff and facilities are committed to the project.
4. While the agency should give to the results of the research such technical review, from the point of view of presentation and use of agency data, as it deems feasible and appropriate, the agency assumes no responsibility for these results. Any publication based on them should include a clear disclaimer to that effect.
5. The agency should take whatever steps are necessary to protect the confidentiality of the data supplied by individual respondents, subject to the usual penalties for disclosure and other requirements of the agency law.

VI. Under extraordinary circumstances an agency may make available to outside research workers copies of original data or intermediate materials which involve no disclosure of confidential data for further processing ouside the agency. This arrangement is appropriate only

(Continued on page 37)

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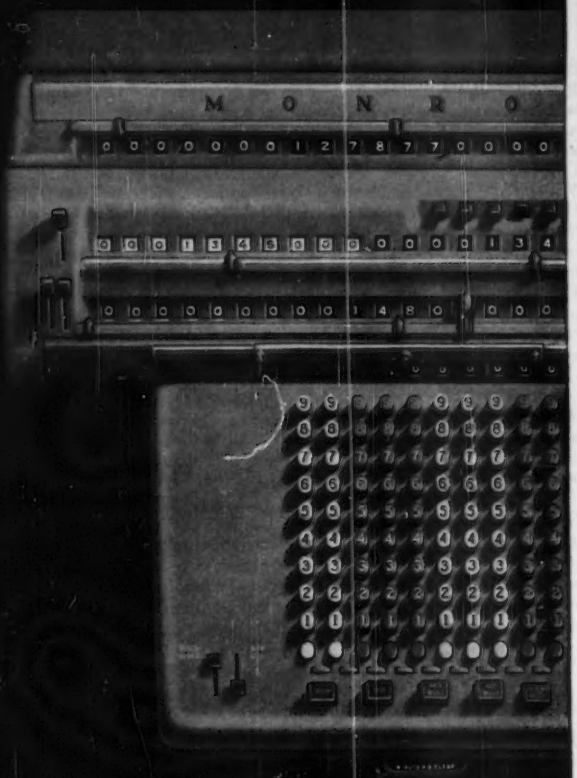

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A "REPLACEMENT" PROCEDURE FOR REDUCING THE BIAS OF NONRESPONSE

by Leslie Kish and Irene Hess

Survey Research Center, University of Michigan

Summary: The effects of nonresponse can be reduced by simulating an increase in the number of recalls. The procedure consists in adding to the addresses of current surveys the nonresponse addresses from similar recent surveys.

* * * *

The suggested procedure is intended to reduce the effects of nonresponse on survey results. The problem is presented in terms of sample surveys of dwellings conducted by means of interviews; but the central idea can be adapted to other survey procedures. Essentially, the plan consists in including with the survey addresses some nonresponse addresses from earlier surveys in which the sampling procedures were similar; interviews from the former nonresponse addresses become "replacements" for survey addresses which result in nonresponses. The plan is particularly well adapted to organizations which frequently conduct surveys with similar sampling procedures.

Several interesting techniques have been suggested for handling the problems of nonresponse [1, pp 292–304]; but for many survey situations no treatment has proved practical, cheap, effective, and statistically efficient. Different survey situations call for different treatments of the nonresponse problem; the procedure suggested here should prove effective in many.

Assume the rather common situation of a survey operation using up to k calls at survey addresses when it is believed that the results of $k+j$ calls would reduce nonresponse and the resulting bias. (The argument is not affected if the k and j are varied among strata—for example, if more recalls are allowed in metropolitan than in rural areas.) The proportions of responses and nonresponses after k calls can be denoted by W_k and $W_{\bar{k}}$, respectively. After j more calls, the responses and nonresponses among the former $W_{\bar{k}}$ nonresponses can be denoted as W_j and $W_{\bar{j}}$, respectively. Thus $W_k+W_{\bar{k}}=1$ and $W_k+W_j+W_{\bar{j}}=1$; and for all of these $0 \leqq W \leqq 1$. Successful exploitation of this situation depends on two conditions, both of which occur often.

First, the response W_j in the "$\bar{k}$ segment" (i.e., the response after j more calls within the nonresponse segment after k calls) must be large enough to reduce appreciably the over-all nonresponse. After a moderate number (k) of calls this usually holds for not-at-homes; it holds whenever for a large enough part of the population the probability of response on a single call is considerably different from either unity or zero. (The former would not appear in the "$\bar{k}$ segment," while the latter would be missed again.) The "hard core" of zero responses is generally small in the not-at-home segment of nonresponses, but may be large among the refusals. Usually, experience indicates that a large portion of the population is neither easy nor impossible to contact; hence, a model can be assumed in which the numbers of the represented population have different nonzero probabilities of response. (See Deming's [2] explicit probability model for nonresponse.)

Second, decreasing the *proportion* of nonresponse also reduces the *effect* of nonresponse insofar as there is some (perhaps mild) regularity in the relationship of the probability of response to the survey variable. A monotonic relationship is sufficient. If there is no relationship, neither good nor harm can result. If the relationship is strong, the additional response can yield correspondingly large reductions in the effects of nonresponse. It is true that the reduction in the *effect* of nonresponse will be somewhat less than the reduction in the *proportion* of nonresponse. Only in very unusual situations could decreased nonresponse *increase* the effect of nonresponse; this could arise only from strong nonmonotonic relationships.

The replacement procedure is suggested as an improvement for surveys now using k calls. The procedure simply consists in including, with the survey sample addresses sent out for k calls, the nonresponse addresses—also after k calls (the "$\bar{k}$ segment")—from a similar recent survey. These addresses are called "replacement addresses": the j calls made on the replacement addresses "replace" the additional j calls that could be, but were not, made on the nonresponses among the addresses of the sample. Again: the $\bar{k}$ segment of the current survey is replaced with the $\bar{k}$ segment of a similar earlier survey, and j calls are made on this replacement.

Roughly speaking, the j calls made on the replacement addresses can be considered as additional to the original calls at the same addresses. If, for simplicity, the replacement addresses receive the same k calls as the "new" survey addresses, the effect resembles a $2k$ call procedure. The j calls on the replacement addresses can be greater than k, in which case, the effect is similar to a $(k+j)>2k$ call procedure.

For effective use of the replacement procedure a third condition is required. The nonresponses must be similar to those of the earlier survey (or surveys) from which replacement addresses are taken. This factor depends on some constancy in the behavior of the population and on some similarity in the survey procedures. The

time between the two surveys must be short enough so that most people will not have moved or sharply changed their habits. Replacement addresses should be chosen from surveys using similar respondent units because not-at-homes and refusals among some respondent units (e.g., males) may differ from those among others (females). Refusals may also depend to some extent on survey objectives and questions, although many refusals occur immediately without regard to the survey objectives. Hence, for refusals, the replacement is best chosen from earlier surveys with similar objectives; for not-at-homes the replacement can be chosen from surveys with different objectives if the respondents are similar. The number of calls (k) and the timing of calls should be the same for both surveys in order to maintain the similarity of the not-at-homes of the original segment and of the replacement segment.

For some surveys it may be impossible to fulfill the third condition: it may be impossible to secure replacement addresses similar to the nonresponses of the survey and in such situations we do not recommend the use of the replacement procedure. In particular, short-term behavior associated with probability of response should be suspect; for example, hours of overtime worked may be substantially different in the replacement segment than in the "$\bar{k}$ segment" of the sample. However, for long-term characteristics—attitudes, possessions, socio-economic behavior—the replacement procedure can often be successful. Furthermore, the response rate from the replacement segment can even be higher than from an equal number of calls in the $\bar{k}$ segment of the sample; this can happen for respondents who are away (perhaps on vacation, or ill) for most of a survey period. Similarly, refusals may have a temporal aspect; for example, death, illness, or some family crisis, may cause refusals which are later reversed. Generally, insofar as the probability of nonresponse tends to be homogeneous within the survey period (has a positive intraclass correlation, or serial correlation), calls at a later date may be more successful.

How is this procedure more efficient than simply making further call-backs on the nonresponses of the survey itself? First, the limits of the survey period often put an end to further recalls. Second, while the remaining (3% to 15%) nonresponses are widely scattered addresses, the replacement addresses are surrounded by many new survey addresses in the same cities and neighborhoods; often in the same blocks.

However, it would be dangerous to use a "replacement" scheme to avoid recalls altogether. For example, a scheme of a single call on both the original addresses and on the replacement addresses would be little better than a first call procedure; perhaps similar to a two-call procedure which is seldom sufficient. The replacement technique should be used *in addition* to some proper recall procedure. After the accumulation of empirical evidence, it may be possible to find some optimum number of calls both in the original and in the replacement portions.

We use the word "replacement" to avoid the word "substitution" because substitution has been used often for schemes to merely increase the sample size in proportion to the losses due to nonresponse. Those schemes do not reduce the nonresponse bias.

Ordinarily a sample of expected size n is achieved by a preliminary selection of n' addresses, when the response rate is expected to be W_k with k calls; here n' is chosen so that $n'W_k=n$. However, with the replacement procedure we must account for an expected additional $n_r=n'_rW_j/W_{\bar{k}}$ responses from n'_r replacement addresses and with a response of $W_j/W_{\bar{k}}$ among them. Hence, n' must be so fixed that $n=n'W_k+n'_rW_j/W_{\bar{k}}$. In a continuing survey operation $n'_r=n'W_{\bar{k}}$; and n' can be chosen so that $n=n'(W_k+W_j)$. In other situations a replacement segment of a different size may happen to be available and must be accepted; or it can be trimmed to manageable size. In either case the replacement segment may be weighted—perhaps by card duplications—to $n'W_j$ so as to simulate the effect of $k+j$ calls in the sample; or the segment may be weighted up to $n'W_{\bar{k}}$, in an attempt to reduce further the nonresponse bias. Actually, some bias remains insofar as the mean response in the replacement (the j) segment differs from the mean of the $\bar{k}$ segment. If a 100% response could be achieved in the "replacement" addresses the effects of nonresponse in the sense of the three conditions above would be eliminated. Insofar as this goal seems unrealistic, the "replacement" procedure is aimed not at the elimination but merely at the reduction of nonresponse effects.

For example, assume a plan to send out 1111 addresses for a survey with the expectation, based on experience, that a $W_k=.90$ response would result in $1111\times.90=1000$ responses after k calls. However, 103 nonresponse addresses from an earlier study are available; and a $W_j/W_{\bar{k}}=.70$ return of $103\times0.70=72$ responses from the former nonresponse addresses is assumed. Hence, it is necessary to send out not 1111 "new" addresses, but only enough new addresses to yield $1000-72$ or 928 responses. Thus, the necessary number of new addresses is computed to be 928/0.90 or 1031. With these assumed response rates, the replacement technique yields the originally planned 1000 responses ($928+72$); but the area of uncertainty due to nonresponse has been reduced from 10% to around $10\%\times30\%=3\%$. The effect may be reduced further by weighting these 72 responses by 1/0.70 up to the 103 nonresponses; it will not be completely eliminated insofar as the hardest-to-get nonresponses (the $\bar{j}$ segment) may differ from the responses obtained (the j segment).

In dealing with nonresponses, the problems of not-at-homes and those of refusals should be separated. In any replacement procedure separate accounts should be kept of at least these two broad classes of nonresponses. As noted, the third condition (similarity) may be more difficult to fulfill for refusals. Also, the replacement procedure may meet greater obstacles in the case of refusals because revisiting the scenes of

former refusals is an unpleasant task. Perhaps the first condition may not hold too well sometimes: the proportion of the zero response class, (i.e., the "hard core" of absolute refusals) may be large. On the other hand, many refusals are probably not of that kind. Stephan and McCarthy reported a response of 68 out of 92 former refusals [8, p 238]; our experience in reinterview situations has been somewhat less successful. Perhaps the smaller the refusal portion, the greater the proportion of "hard core" refusals among them, and the smaller the proportion of responses when these refusals are used as replacements.

During the past year and a half, the Survey Research Center has used this replacement procedure on several surveys, without difficulty, on the "not-at-homes" group of nonresponses. We hope that it will be tested before long on the refusals as well. The procedure has proven practical, simple, and not expensive; it would be difficult to assess the increase in costs, which is probably slight. There may be a higher cost per interview because these addresses are more scattered as well as more difficult to contact; on the other hand, the cost of obtaining new addresses is saved. The cost of replacements is probably like that of recalls; the experience at our Center agrees with that of Durbin [3, pp 7–8], who found little difference in the costs of the different calls.

The magnitude of the nonresponse problem can be illustrated by a brief look at the efforts of the Survey Research Center [for others, see 8, pp 235–272]. Overall, the not-at-homes range from 4% to about 7% after callbacks, which vary from three up to eight in some difficult areas. The 4% is reached for easier-to-find respondents (females, any adult), for greater clustering, for longer survey periods, and for larger allowed costs for call-backs. When we have used the replacement procedure on the not-at-homes segment of nonresponses, the response rates have been from 50% to 65%; this yield can be increased with greater emphasis on these addresses.

The proportions of refusals on different surveys, 4% to 10%, are more variable, depending somewhat on survey objectives and questions; on the average they are slightly greater than the not-at-homes. If, to our experience with not-at-homes and to our projected experiments with refusals, we add our recent success in reducing noncoverage from over 10% to under 3% [5, p 511], these three programs (anticipating some success with refusals) may well bring the total area of nonobservation (nonresponse plus noncoverage) for surveys of the Survey Research Center from the former 20% to 25% to as low as 5%. (Note that the Center's response rates compare well with similar surveys; see 8, pp 235–272; the Center's coverage rate is probably among the best.)

On single surveys 35 to 65 interviews have been obtained from replacements, representing about 3% to 6% in surveys of 1000 to 2000 interviews. The accumulation of cases is not large enough for investigating the usually subtle differences in characteristics between this nonresponse segment and the rest of the sample. It will be several years before we accumulate enough cases for such an investigation.

There are two reasons for publishing this procedure now, after its feasibility has been investigated but before we gathered empirical evidence of its effectiveness. First, the procedure appears promising enough to be shared with other researchers. Second, we hope that others will accumulate and present evidence on its feasibility and effects. We hope that publication will increase the size of the investigation and broaden its base by testing it in different situations. We believe that most progress in the area of nonresponse (and response) errors will be obtained not by "crucial experiments," but by attaching methodological research opportunistically, at marginal cost, to a variety of field projects.

Several lines of further improvement appear possible: 1) With more data on costs, "optimum" proportions and weights for the replacements can be investigated. The nuisance of calling on former refusals may lead to reducing the sampling rates for them. 2) Better estimates may be constructed by weighting, utilizing data on how difficult the contact was; for not-at-homes this can simply be data on the number of necessary calls, or data of the Hartley-Politz-Simmons type [4, 6, 7]. However, for moderate size samples this kind of correction may well turn out to be trivial. 3) Analysis of the results of replacements, together with analysis of results of recalls, will increase knowledge of the problems of nonresponse. With that knowledge, the replacement procedure can be used to reduce the number of recalls; some "optima" can be found for the joint use of recalls and replacements.

Finally, this procedure may also serve as an example of the kind of improvements available to continuing survey operations. The theory of sampling is now stated generally within the confines of single sampling operations; but from it procedures can also be derived to take advantage of the special opportunities which continuing sampling operations provide.

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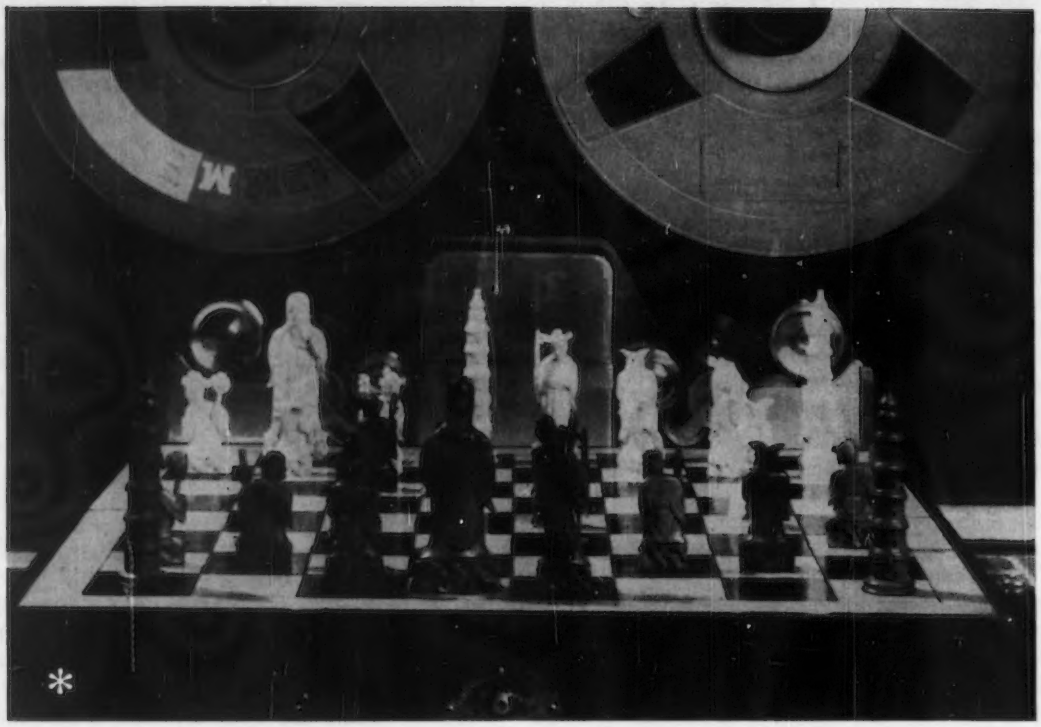

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Program of the 119th Annual Meeting of the

American Statistical Association

with the Programs of

THE INSTITUTE OF MATHEMATICAL STATISTICS

and the BIOMETRIC SOCIETY (ENAR)

Shoreham Hotel, December 27-30, 1959, Washington, D. C.

Schedule of Meetings

Note: The program is as accurate as possible at the time this issue went to press. However, please remember that changes will occur in times as well as content before the meeting takes place. The version below is for information only; consult the final program for actual schedules.

SATURDAY, DECEMBER 26

4:00-8:00 P.M.

Registration

SUNDAY, DECEMBER 27

8:00 A.M. ——

Registration

10:00-11:50 A.M.

Some Special Studies Based on Recent Censuses

Business and Economic Statistics Section

Chairman

HOWARD C. GRIEVES, Bureau of the Census

Papers:

"Measures of Product Concentration, 1947 and 1954, Developed from Census Materials" by RALPH NELSON, National Bureau of Economic Research

"The Analysis of Price-Cost Behavior, Based on the Census of Manufactures" by RICHARD RUGGLES, Yale University

"Uses of Census Information on Real Estate Values for Economic Analysis" by ROBERT F. DRURY, Bureau of the Census

Discussion:

MORRIS A. ADELMAN, Massachusetts Institute of Technology

FRANK A. HANNA, Duke University

GEORGE W. MITCHELL, Federal Reserve Bank of Chicago

10:00-11:50 A.M.

Design of Experiments—I

Biometrics Section—Section on Physical and Engineering Sciences —Biometric Society (ENAR)

Chairman:

OSCAR KEMPTHORNE, Iowa State University

Papers:

"The Relationship Between Covariance and Individual Curvature Analyses of Experiments with Background Trends" by C. P. COX, Iowa State University

"Testing Homogeneity of Regression Coefficients in a One-way Analysis of Variance" by D. S. ROBSON and G. F. ATKINSON, Cornell University

"The Need for Experimental Design Research for Nonlinear Trends in Medical Biology" by M. E. TURNER, Medical College of Virginia

10:00-11:50 A.M.

Contributed Papers—I

Institute of Mathematical Statistics

Chairman:

(To be announced)

Papers:

(To be announced)

1:00-2:50 P.M.

The Securities Market

Business and Economic Statistics Section, joint with American Finance Association

Chairman:

EDMUND A. MENNIS, Wellington Fund

Papers:

"Stock Prices and Capital Evaluation" by ALAN GREENSPAN, Townsend, Greenspan and Co.

"A Critical Evaluation of Stock Market Indexes" by ROBERT W. STORER, Manufacturers National Bank of Detroit

Discussion:

EUGENE BANKS, Brown Brothers, Harriman and Co.

ROBERT KAVESH, New York University

DAVID K. EITEMAN, University of California at Los Angeles

1:00-2:50 P.M.

Data Evaluation Processes

Social Statistics Section

Chairman:

LESLIE KISH, Survey Research Center

Papers:

"Response Error" by MORRIS H. HANSEN, WILLIAM N. HURWITZ, and MAX BERSHAD, Bureau of the Census

"Comparative Analyses: Comparing Health Statistics from Record Sources and from Household Interviews" by O. K. SAGEN, RUTH E. DUNHAM, and WALT R. SIMMONS, U. S. National Health Survey

Discussion:

WILLIAM G. COCHRAN, Harvard University

1:00-2:50 P.M.

Regional and National Accounts

Section on Training

Chairman:

HARVEY S. PERLOFF, Resources for the Future

Papers:

"Possible Relations between National and Regional Accounts Systems" by RICHARD RUGGLES, Yale University and NANCY D. RUGGLES, United Nations and Yale University

"Regional Accounts: Objectives and Framework" by WERNER Z. HIRSCH, Washington University and Resources for the Future

Discussion:

OTTO ECKSTEIN, Harvard University and Joint Economic Committee

CHARLES SCHWARTZ, International Monetary Fund

1:00-2:50 P.M.

Multivariate Analysis—I

Biometrics Section—Section on Training—Biometric Society (ENAR)—Institute of Mathematical Statistics

Chairman:
S. S. WILKS, Princeton University

Papers:
"Multivariate Chebyshev Type Inequalities" by A. W. MARSHALL, Stanford University
"Some Applications of Multivariate Chebyshev Inequalities" by I. OLKIN, Michigan State University
"A Representation of the Wishart Matrix" by R. A. WIJSMAN, University of Illinois

1:00-2:50 P.M.

Statistics in Some Aspects of Meteorology

Section on Physical and Engineering Sciences

Chairman:
MARVIN ZELEN, National Bureau of Standards

Papers:
"Problems and Progress in Weather Modification Experiments" by GLENN BRIER and HERB THOM, U. S. Weather Bureau
"Some Meteorological Factors in the Design of Weather Modification Experiments" by FRANKLIN NEWHALL, Dept. of Agriculture.

Discussion:
OSCAR KEMPTHORNE, Iowa State University
MAX WOODBURY, New York University

2:00-2:50 P.M.

Wald Lecture—I

Institute of Mathematical Statistics

Chairman:
K. L. CHUNG, Syracuse University

Paper:
"Balanced and Group Divisible Designs" by R. C. BOSE, University of North Carolina

3:00-3:50 P.M.

Role of Statisticians and Statistical Methodology in Medical Research

American Statistical Association

Chairman:
RENSIS LIKERT, Institute for Social Research

Address:
JAMES A. SHANNON, Director, National Institutes of Health

3:00-3:50 P.M.

Special Invited Address

Institute of Mathematical Statistics

Chairman:
(To be announced)

Paper:
"Recent Work in the Theory of Dams" by W. L. SMITH, University of North Carolina

4:00-5:50 P.M.

Studies in Honor of William Fielding Ogburn, 1886-1959

American Statistical Association

Chairman:
STUART A. RICE, Surveys and Research Corporation

Papers:
"Quantitative Methods in Sociology" by GEORGE A. LUNDBERG, University of Washington
"Type of Family and Type of Economy" by MEYER F. NIMKOFF and R. MIDDLETON, Florida State University
"Age Differentials in Internal Migrations by Regions and Decades, United States, 1870-1950" by DOROTHY SWAINE THOMAS, University of Pennsylvania

Discussion:
A. J. JAFFE, Columbia University

4:00-5:50 P.M.

Aspects of Stock Ownership in United States Corporations

Business and Economic Statistics Section, joint with American Finance Association

Chairman:
VITO NATRELLA, Securities and Exchange Commission.

Papers:
"The Decade Ahead in Share Ownership Research" by JONATHAN BROWN, New York Stock Exchange
"Investment Companies—Their Investments and Investors" by HAROLD S. OBERG, National Association of Investment Companies
(To be announced) by HORACE J. DE PODWIN, General Electric Co.

Discussion:
IRWIN FRIEND, University of Pennsylvania
DANIEL H. BRILL, Board of Governors, Federal Reserve System

4:00-5:50 P.M.

Labor Force Measurement and Interpretation

Social Statistics Section

Chairman:
GLADYS L. PALMER, University of Pennsylvania

Papers:
"Recent Changes in Programs for Labor Force Measurement" by MARGARET E. MARTIN, Office of Statistical Standards
"Cyclical Changes in Employment and Unemployment" by SEYMOUR L. WOLFBEIN, U. S. Department of Labor
"Demographic Factors in Labor Force Growth" by GERTRUDE BANCROFT, Bureau of the Census
"Migration and Employment" by ROBERT O. CARLTON, Puerto Rican Planning Board

Discussion:
GEORGE P. SHULTZ, University of Chicago
JAMES W. KNOWLES, Joint Economic Committee Staff

4:00-5:50 P.M.

Refresher Training of Statisticians

Section on Training—Business and Economic Statistics Section

Chairman:
Carl E. Marshall, Oklahoma State University

Papers:
(To be announced)

4:00-5:50 P.M.

Biometric Society (ENAR)—Regional Advisory Board Meeting

Chairman:
S. M. FREE, Smith Kline and French Laboratories

4:00-5:50 P.M.

Contributed Papers—I

Biometric Society (ENAR)

Chairman:
(To be announced)

Papers:
(To be announced)

4:00-5:50 P.M.

Invited Papers—I

Institute of Mathematical Statistics

Chairman:
P. P. BILLINGSLEY, University of Chicago

Papers:
"On a Problem of Queues with Single Server" by L. TAKACS, Columbia University
"Recent Developments in Inventory Theory" by H. SCARF, Stanford University
"Semi-Markov Processes—Denumerable State Space" by R. PYKE, Columbia University

6:00 P.M.

Dinner Meeting of Board of Directors and Council

American Statistical Association

SUNDAY, DECEMBER 27

8:00-9:50 P.M.

Statistical Analysis in Regional Science

Business and Economic Statistics Section, joint with Regional Science Association

Chairman:

(To be announced)

Papers:

"Minimum Requirements for an Approach to an Urban Economic Base" by EDWARD L. ULLMAN and MICHAEL DACEY, University of Washington

"A Statistical and Analytical Technique for Regional Description and Projection" by EDGAR DUNN, University of Florida

Discussion:

(To be announced)

8:00-9:50 P.M.

Innovations in Statistical Research in Social Science

Social Statistics Section

Chairman:

MARGARET JARMAN HAGOOD, U. S. Department of Agriculture

Papers:

"Use of Computers in Analyses of Social Organization" by JAMES S. COLEMAN, Johns Hopkins University

"Some Statistical Problems in an Organization Research Project" by HARRISON WHITE, University of Chicago

"The Computer in Analysis of Social Statistics" by JOSEPH F. DALY, Bureau of the Census

8:00-9:50 P.M.

1959 Council Meeting — Institute of Mathematical Statistics

MONDAY, DECEMBER 28

8:00 A.M. — Breakfast

Meeting of Chapter Presidents and Secretaries and District Representatives

American Statistical Association

8:30-10:20 A.M.

Statistical Needs for Construction and Mortgage Finance

Business and Economic Statistics Section

Chairman:

GEORGE B. HURFF, University of Florida

Papers:

"The Construction Statistics Program" by ELMER BRATT, Lehigh University

"The Present Status of Statistics Dealing with Construction Finance" by SAUL B. KLAMAN, National Association of Mutual Savings Banks

"Better Construction Statistics Through Intense Efforts at the State Level" by CARTER C. OSTERBIND, University of Florida

Discussion:

SAMUEL J. DENNIS, Bureau of the Census

GEORGE B. HURFF, University of Florida

8:30-10:20 A.M.

Design of Experiments—II

Section on Physical and Engineering Sciences—Biometrics Section—Biometric Society (ENAR)

Chairman:

(To be announced)

Papers:

"Designs of Type B'" by GEORGE BOX, University of Wisconsin (To be announced) by JOHN MANDEL, National Bureau of Standards

"Rectangular Lattices for $V = pk^n$ in Incomplete Blocks of Size k" by W. T. FEDERER, Cornell University

Discussion:

H. O. HARTLEY, Iowa State University

8:30-10:20 A.M.

Contributed Papers

Social Statistics Section

Chairman:

(To be announced)

Papers:

"Sampling with Unequal Probabilities Without Replacement" by H. O. HARTLEY and J. N. K. RAO, Iowa State University

"Some Considerations in the Design of Subsamples" by THOMAS HAYTON, Bell Telephone Co. of Canada

"Empirical Analysis of Segregation Indexes" by KARL E. TAEUBER, Department of Health, Education, and Welfare

"An Evaluation of Social Area Indices" by JAMES M. BESHERS, Purdue University

(Other papers to be announced)

9:00-10:00 A.M.

Wald Lecture—II

Institute of Mathematical Statistics

Chairman:

(To be announced)

Papers:

"Orthogonal Squares and Orthogonal Arrays" by R. C. BOSE, University of North Carolina

10:30 A.M.-12:20 P.M.

International Measurement and Analysis of Savings

Business and Economic Statistics Section

Chairman:

IRWIN FRIEND, University of Pennsylvania

Papers:

"India" by P. S. LOKANATHAN, National Council of Applied Economic Research

"Mexico" by FRANK TAMAGNA, American University

"United States" by R. W. GOLDSMITH, National Bureau of Economic Research and New York University

Discussion:

JAMES MORGAN, University of Michigan

STANLEY SIGEL, Board of Governors of the Federal Reserve System

10:30 A.M.-12:20 P.M.

Place of the 1960 Census in the Evolution of Important Census Concepts

Social Statistics Section

Chairman:

ROBERT W. BURGESS, Bureau of the Census

Papers:

"Where We Stand in the Urban-Rural and Farm Residence Concepts" by HENRY D. SHELDON, Bureau of the Census

"The New Household and How It Affects Other Groups Enumerated" by PAUL C. GLICK and BEULAH WASHABAUGH, Bureau of the Census

"Components of Change in the Nation's Housing Inventory in Relation to the 1960 Census" by F. S. KRISTOFF, Bureau of the Census

10:30 A.M.-12:20 P.M.

Multivariate Analysis—II

Section on Training — Biometrics Section — Biometric Society (ENAR)—Institute of Mathematical Statistics

Chairman:
R. L. Anderson, North Carolina State College

Papers:
"Sequential Chi-Square and T^2 Tests" by J. E. Jackson, Eastman Kodak Company and R. A. Bradley, Florida State University
"Multivariate Correlation Models with Mixed Discrete and Continuous Variables" by R. F. Tate, University of Washington
"Analysis of Multi-Factor Multi-Response Experiments with Mixed Factor and Response Types" by S. N. Roy, University of North Carolina

10:30 A.M.-12:20 P.M.

Statistical Methods in Human Genetics

Biometrics Section—Biometric Society (ENAR)

Chairman:
Norman C. Severo, University of Buffalo

Papers:
"Methodology of Twin Studies" by Richard H. Osborne, Sloan Kettering Institute and Oscar Kempthorne, Iowa State University
"A Statistical Model for Diagnosing Zygosis by Ridge-Count" by Donald Richter, University of Minnesota and Seymour Geisser, National Institutes of Health
"A Differential Method of Estimating Type Frequencies in Triplets and Quadruplets" by Gordon Allen, National Institutes of Health

Discussion:
Abraham Lilienfeld, Johns Hopkins University
Allyn Kimball, Oak Ridge National Laboratory

10:30 A.M.-12:20 P.M.

Screening Data and Direct Search by Means of Electronic Computers

Section on Physical and Engineering Sciences

Chairman:
(To be announced)

Papers:
"A Screening Program for the IBM 704" by Milton Terry, Bell Telephone Labs. Inc.

Discussion:
Jack Moshman, Corporation for Economic and Industrial Research
Frederick Mosteller, Harvard University

10:30 A.M.-12:20 P.M.

Invited Papers—II

Institute of Mathematical Statistics

Chairman:
D. B. Duncan, University of North Carolina

Papers:
"Multiple Decision Rules Which Control All Kinds of Errors" by W. J. Hall, University of North Carolina
"Remarks About a Paired Comparison Model" by G. Noether, Boston University
"Rank Tests of Locally Most Powerful Type" by H. Uzawa, Stanford University

10:30 A.M.-12:20 P.M.

Invited Papers—III

Institute of Mathematical Statistics

Chairman:
E. Lukacs, Catholic University

Papers:
"The Spectral Theory of Operators in a Hilbert Space and its Application to the Derivation of Some Statistical Theorems" by E. J. Hannan, Canberra University College, Australia
"On Explicit Solutions to Problems of Linear Prediction and Regression Analysis of Continuous Parameter Time Series" by E. Parzen, Stanford University

12:30 P.M.—Luncheon

The Economic Outlook

American Statistical Association—Business and Economic Statistics Section, joint with American Economic Association

Chairman:
Martin R. Gainsbrugh, National Industrial Conference Board

Speakers:
"Domestic Business Outlook" by Paul M. McCracken, University of Michigan
"Balance of Trade Outlook" by Donald F. Heatherington, National Foreign Trade Council

2:00-3:50 P.M.

International Progress in Input-Output Studies

American Statistical Association joint with Econometric Society

Chairman:
W. Duane Evans, Bureau of Labor Statistics

Papers:
"Empirical Studies" by Marvin Hoffenburg, Committee for Economic Development
"Theoretical Contributions" by Wassily Leontief, Harvard University
"Applications" by Robert E. Johnson, Western Electric Co.
"Prospects for Future Development" by Raymond T. Bowman, Office of Statistical Standards

Discussion:
J. Kenneth Galbraith, Harvard University

2:00-3:50 P.M.

Demographic Facts and International Political Realities

Social Statistics Section

Chairman:
Philip M. Hauser, University of Chicago

Papers:
"The Current Westward Expansion of the United States in Political Focus" by Irene B. Taeuber, Princeton University
"The Problems of Questions such as Religion and Origins in the Canadian Census" by John T. Marshall, Dominion Bureau of Statistics
"Populaton Growth and Social Welfare in South Asia" by Nathan Keyfitz, University of Toronto

2:00-3:50 P.M.

Contributed Papers

Section on Physical and Engineering Sciences

Papers:
"Estimation in Non-Linear Least Squares Problems" by H. O. Hartley, Iowa State University
"Truncation and Tests of Hypothesis, II" by Irwin Guttman, McGill University
"On a Significance Test of System Reliability" by David Rubenstein, General Electric Co.
"Analysis of Survival Data by Regression Techniques" by Scott Krane and R. J. Buehler, Iowa State University
"Tables of Factors for the Computation of Two-sided Tolerance Limits for Normal Distributions" by A. Weissberg and G. H. Beatty, Battelle Memorial Institute

2:00-3:50 P.M.

Contributed Papers—II

Institute of Mathematical Statistics

Chairman:
(To be announced)

Papers:
(To be announced)

2:00-3:50 P.M.

Statistics-In-Service Training in Industry

Section on Training

Chairman:
Howard L. Jones, University of Chicago

Papers:
"Aids to Communicating Statistical Ideas" by Paul C. Clifford, Montclair State College
"A Comprehensive Training Program in Industrial Statistics" by Albert W. Wortham, Texas Instruments, Inc.

Discussion:
(To be announced)

MONDAY, DECEMBER 28

2:00-3:50 P.M.

Classification and Discrimination—I

Biometrics Section—Biometric Society (ENAR)—Institute of Mathematical Statistics

Chairman:

HERBERT SOLOMON, Stanford University

Papers:

"Classification into Multivariate Normal Distributions with Unequal Covariance Matrices" by T. W. ANDERSON, Columbia University and R. R. BAHADUR, Indian Statistical Institute
"A Representation for Anderson's W Statistic" by A. BOWKER, Stanford University
"An Asymptotic Expansion for the Distribution Function of Anderson's Classification Statistic W" by R. SITGREAVES, Columbia University

2:00-3:50 P.M.

Recent Developments in Information Theory

Institute of Mathematical Statistics (in cooperation with the Professional Group on Information Theory, Institute of Radio Engineers)

Chairman:

DAVID SLEPIAN, Bell Telephone Labs.

Papers:

"Bounds on Tails of Martingales with Applications to Information Theory" by CLAUDE SHANNON, Massachusetts Institute of Technology
"Information Theory and Statistics" by SOLOMON KULLBACK, George Washington University
"Error Correcting Codes" by D. N. RAY-CHAUDHURI, Case Institute of Technology

2:00-3:50 P.M.

Discussion Group on Research on Skill Development and Manpower Utilization

Chairman:

JOHN S. MCCAULEY, Bureau of Apprenticeship and Training

2:30 P.M.

Research on Economic Development

American Economic Association, joint with American Statistical Association—Business and Economic Statistics Section

Chairman:

MAX F. MILLIKAN, Massachusetts Institute of Technology
(See AEA program for details)

4:00-5:50 P.M.

Controversial Areas in Federal Statistics: Anticipatory Data

Business and Economic Statistics Section

Chairman:

GEORGE P. HITCHINGS, Ford Motor Co.

Papers:

"The Role of the Federal Government as a Source of Anticipatory Data" by STANLEY LEBERGOTT, Office of Statistical Standards
"The Budget as an Indicator of Government Intentions" by DAVID NOVICK, Rand Corporation

Discussion:

MORRIS COHEN, National Industrial Conference Board
MILLARD HASTAY, Washington State College

4:00-5:50 P.M.

Educational Research Through Applied Statistical Methods

Social Statistics Section

Chairman:

HERBERT S. CONRAD, U. S. Office of Education

Papers:

"Technical Aspects of the Survey of Human Resources" by JOHN T. DAILEY, American Institute for Research
"Estimating Public School Expenditures in the Decade Ahead" by LOUIS H. CONGER, U. S. Office of Education
"A Study of Factors Effecting Response in a Mail Survey of Teachers" by WARD S. MASON and ROBERT J. DRESSEL, U. S. Office of Education and ROBERT K. BAIN, Purdue University

4:00-5:50 P.M.

The Organization of Statistical Instruction in Colleges and Universities

Section on Training, joint with Institute of Mathematical Statistics

Chairman:

EMANUEL PARZEN, Stanford University

Panel:

T. A. BANCROFT, Iowa State University
J. NEYMAN, University of California
G. E. NICHOLSON, JR., University of North Carolina
S. S. WILKS, Princeton University

Discussion:

F. MOSTELLER, Harvard University
H. SOLOMON, Stanford University

4:00-5:50 P.M.

Classification and Discrimination—II

Biometrics Section—Biometric Society (ENAR)—Institute of Mathematical Statistics

Chairman:

S. W. GREENHOUSE, National Institutes of Health

Papers:

"Some Problems in Multivariate Classification Using Discrete Variates" by W. G. COCHRAN, Harvard University and C. E. HOPKINS, University of Oregon
"The Descriptive Use of Discriminant Functions" by M. J. R. HEALY, Rothamsted Experiment Station and Bell Telephone Labs.
"Linear Multivariate Models as Representative of Clinical Judgment" by P. J. HOFFMAN, University of Oregon

4:00-5:50 P.M.

Contributed Papers—III

Institute of Mathematical Statistics

Chairman:

R. BECHHOFER, Cornell University

Papers:

(To be announced)

6:00 P.M.—Dinner

1960 Program Committee—American Statistical Association

6:00-6:50 P.M.

Social Statistics Section—Business Meeting

6:00-6:50 P.M.

Institute of Mathematical Statistics—Business Meeting

8:00 P.M.

Some Methodological Problems in Surveys

Social Statistics Section—Biometrics Section—Biometric Society (ENAR)

Chairman:

FREDERICK F. STEPHAN, Princeton University

Papers:

"The Use of Rotating Samples in the Census Bureau's Monthly Sample Surveys" by RALPH S. WOODRUFF, Bureau of the Census
"Computation and Presentation of Variances for Multi-Purpose Surveys" by LESLIE KISH and IRENE HESS, Survey Research Center
"Sampling Problems in the Near East" by J. E. MORTON, United Nations

Discussion:

ELI S. MARKS, National Analysts, Inc.

8:00 P.M.

1960 Council Meeting — Institute of Mathematical Statistics

TUESDAY, DECEMBER 29

8:00 A.M.—Breakfast

Business and Economic Statistics Section — Business Meeting

8:30-10:20 A.M.

Ratio Estimation

Biometrics Section—Biometric Society (ENAR)—Social Statistics Section

Chairman:

H. O. HARTLEY, Iowa State University

Papers:

"The Application of Ratio and Regression Estimators to Analytic Studies" by H. O. HARTLEY, Iowa State University
"Ratio Estimation in Stratified Sampling" by J. N. DE PASCUAL, Iowa State University
"Unbiased Component-Wise Ratio Estimation" by D. S. ROBSON and C. VITHAYASAI, Cornell University
"Sampling Experiments on Ratio Estimators" by A. ROSS, University of Kentucky Medical Center
"Unbiased Estimation" by W. H. WILLIAMS, McMaster University

8:30-10:20 A.M.

Outliers

Section on Physical and Engineering Sciences

Chairman:

(To be announced)

Papers:

"Locating Outliers in Factorial Experiments" by CUTHBERT DANIEL, New York City
"Outliers" by FRANK ANSCOMBE, Princeton University

Discussion:

JOHN TUKEY, Princeton University
WILLIAM KRUSKAL, University of Chicago

8:30-10:20 A.M.

Problems of the Standard Metropolitan Statistical Area Definition

American Statistical Association

Chairman:

PEYTON STAPP, Office of Statistical Standards

Papers:

"Sharpening the SMSA Tool" by H. P. ALSPAUGH, Standard Rate and Data Service
"Use of SMSA Data in Local Planning" (Speaker to be announced)
"Use of SMSA as an Operating Tool" by VLADIMIR D. CHAVRID, Bureau of Employment Security

Discussion:

HENRY SHRYOCK, Bureau of the Census

8:30-10:20 A.M.

Contributed Papers

Section on Training

Papers:

"The Visual Conceptualization of Linear Correlation" by ELLIS B. PAGE, Eastern Michigan College
(Other papers to be announced)

9:00-10:00 A.M.

Wald Lecture—III

Institute of Mathematical Statistics

Chairman:

(To be announced)

Paper:

"Factorial Designs—Confounding and Fractional Replication" by R. C. BOSE, University of North Carolina

9:30 A.M.

Research on Income, Consumption, and Savings

American Economic Association, joint with American Statistical Association—Business and Economic Statistics Section

Chairman:

MILTON FRIEDMAN, University of Chicago
(See AEA program for details)

10:30 A.M.-12:20 P.M.

Appraisal of Current Anticipations Data

Business and Economic Statistics Section

Chairman:

(To be announced)

Papers:

(To be announced) by MORRIS COHEN, National Industrial Conference Board
(To be announced) by F. THOMAS JUSTER, Amherst College
(To be announced) by JOHN H. HOAGLAND, Michigan State University

Discussion:

IRVING SCHWEIGER, University of Chicago
MILLARD HASTAY, Washington State College

10:30 A.M.-12:20 P.M.

Statistical Definitions, Concepts, and Categories

Social Statistics Section—Biometrics Section—Biometric Society (ENAR)

Chairman:

DUDLEY KIRK, Population Council

Papers:

"Relations of Some Social Science Concepts to Statistical Data" by FREDERICK F. STEPHAN, Princeton University
"The Evaluation Program of the 1960 Censuses" by MORRIS H. HANSEN, LEON PRITZKER and JOSEPH STEINBERG, Bureau of the Census
'Some Principles of Definition in Statistics" by L. E. ROWEBOTTOM and D. H. STEINTHORSON, Dominion Bureau of Statistics

10:30 A.M.-12:20 P.M.

Adequacy of the Elementary Statistics Courses and Elementary Texts

Section on Training

Chairman:

JOHN FIRESTONE, City College of New York

Papers:

(To be announced) by LESTER FRANKEL, Audits and Surveys, Inc.
(To be announced) by EVERETT JOHNSON, George Washington University

Discussion:

(To be announced)

10:30 A.M.-12:20 P.M.

Mathematical Models in the Life Sciences

Biometrics Section—Biometric Society (ENAR)—Institute of Mathematical Statistics

Chairman:

HAROLD F. BRIGHT, George Washington University

Papers:

"The Two-Stage Mutation Model for Carcinogenesis and Experimental Means of its Verification" by JERZY NEYMAN and ELIZABETH L. SCOTT, University of California
"On the Relation between the Structural Geometry and the Function of Individual Neurons" by WILFRED RALL, National Institutes of Health
"Competing Risks and the Follow-Up Study" by CHIN LONG CHIANG, University of California

TUESDAY, DECEMBER 29

10:30 A.M.-12:20 P.M.

Statistical Analysis of Turbulence on the Surface of the Sun

Section on Physical and Engineering Sciences

Chairman:
(To be announced)

Papers:
(To be announced) by FRANCOIS FRENKIEL, Johns Hopkins University
(To be announced) by MARTIN SCHWARZSCHILD, Princeton University

Discussion:
G. WATSON
LEO TICK, New York University

10:30 A.M.-12:20 P.M.

Invited Papers—IV

Institute of Mathematical Statistics

Chairman:
J. F. HANNAN, Michigan State University

Papers:
"Construction of Optimum Experimental Designs" by J. KIEFER, Cornell University
"Generalized Bayes Solutions in Estimation Problem" by J. SACKS, Columbia University
"On a Unified Theory of Estimation" by A. BIRNBAUM, New York University

10:30 A.M.-12:20 P.M.

Contributed Papers—II

Biometric Society (ENAR)

Chairman:
(To be announced)

Papers:
"On the Distribution of a Stratified Ratio-Estimated for a Response-Bias Problem in a Consumer Survey" by B. D. TIKKIWAL, Karnatak University
(Others to be announced)

12:30 P.M.—Luncheon

Census Tract

American Statistical Association

Chairman:
GALE R. OBER, JR., Cleveland Real Property Inventory

Paper:
"Estimating Population by Census Tracts" Speaker to be announced

2:00-2:50 P.M.

Rietz Lecture

Institute of Mathematical Statistics

Chairman:
J. WOLFOWITZ, Cornell University

Paper:
(To be announced) by S. S. WILKS, Princeton University

2:00-3:50 P.M.

Census Tract Conference

American Statistical Association

Chairman:
(To be announced)

Papers:
"Final Tract Tables to be Published for the 1960 Census" by CONRAD TAEUBER, Bureau of the Census
"Census Tract Maps" (Speaker to be announced)
"How to Use Census Tract Data" (Speaker to be announced)

2:00-3:50 P.M.

Business Fluctuations and Purchases of Capital Goods and Materials

Business and Economic Statistics Section

Chairman:
GEORGE GARVY, Federal Reserve Bank of New York

Papers:
"Over and Under Purchasing of Housing" by MANUEL GOTTLIEB, University of Kansas
"Under and Over Buying of Business Plant and Equipment" by DANIEL CREAMER, National Industrial Conference Board
"Over and Under Purchasing of Materials" by RUTH MACK, City of New York

Discussion:
DANIEL HAMBERG, University of Maryland

2:00-3:50 P.M.

The Planning and Financing of Social Research

Social Statistics Section

Chairman:
STUART A. RICE, Surveys and Research Corporation

Papers:
"Programming and Financing Social Research" by PAUL WEBBINK, Social Science Research Council
"The Role of the Federal Government in Social Research" by HENRY RIECKEN, National Science Foundation
"The University as a Force in Social Science" by PHILIP M. HAUSER, University of Chicago

2:00-3:50 P.M.

Planning Clinical Trials

Biometrics Section—Biometric Society (ENAR)

Chairman:
JEROME CORNFIELD, Johns Hopkins University

Panel:
IRWIN D. J. BROSS, Roswell Park Memorial Institute
SPENCER M. FREE, JR., Smith Kline and French Laboratories
HARRY GOLD, Cornell University Medical College
EDMUND A. GEHAN, National Institutes of Health
JOHN MOYER, Hahnemann Med. College

2:00-3:50 P.M.

Section on Training—Business Meeting

2:00-3:50 P.M.

Section on Physical and Engineering Sciences—Business Meeting

2:30 P.M.

Research on Theory of the Firm

American Economic Association, joint with American Statistical Association—Business and Economic Statistics Section

Chairman:
RICHARD M. CYERT, Carnegie Institute of Technology
(See AEA program for details)

3:00-3:50 P.M.

Special Invited Address

Institute of Mathematical Statistics

Chairman:
(To be announced)

Speaker:
(To be announced)

TUESDAY, DECEMBER 29

3:00-3:50 P.M.

Meeting of Experiment Station Statisticians

American Statistical Association

Chairman:
E. L. LeClerg, U. S. Department of Agriculture

4:00-5:50 P.M.

Statistics for a Federal Transportation Policy

Business and Economic Statistics Section

Chairman:
Paul W. Charington, Harvard Business School

Papers:
"Economic Statistics Needed for Transportation Research and Policy" by Allen R. Ferguson, Northwestern University
"Methods for Measuring Transportation of Passengers and Commodities at National Level" by Donald E. Church, U. S. Department of Commerce

Discussion:
Norman L. Johnson, Port of New York Authority
Wilfred Owen, Brookings Institution
Marvin Hoffenberg, Committee for Economic Development

4:00-5:50 P.M.

How the 1960 Census Will be Taken

Social Statistics Section

Chairman:
Conrad Taeuber, Bureau of the Census

Papers:
"The Enumerator Rings the Bell" by Lowell T. Galt and Robert B. Voicht, Bureau of the Census
"Programming the Population Census" by Richard A. Hornseth, Bureau of the Census
"Publications of the 1960 Census" by Howard G. Brunsman, Bureau of the Census

4:00-5:50 P.M.

Role of the Statistician

Section on Training—Business and Economic Statistics Section

Chairman:
William Tongue, Jewel Tea Company

Speakers:
(To be announced)

4:00-5:50 P.M.

Tolerancing

Section on Physical and Engineering Sciences

Chairman:
(To be announced)

Papers:
"Some Statistical Techniques for Industrial Tolerancing" by Brad Murphy
"Some Questions About Specifications and Drawings" by Sutton Monro, Bell Telephone Laboratories

Discussion:
Eugene Pike

4:00-5:50 P.M.

Invited Papers—V

Institute of Mathematical Statistics

Chairman:
M. Rosenblatt, Brown University

Papers:
"Group Representation Methods in Multivariate Distribution Theory" by A. T. James, Yale University
"Recent Developments in the Convergence of Stochastic Processes" by G. Kallianpur, Michigan State University
"Toeplitz Forms and Generalizations of Bernouilli Trials" by F. Spitzer, University of Minnesota

4:00-5:50 P.M.

Contributed Papers—IV

Institute of Mathematical Statistics

Chairman:
Margaret Gurney, Bureau of the Census

Papers:
(To be announced)

4:00-5:50 P.M.

Biometric Society (ENAR)—Business Meeting

8:00 P.M.

Presidential Address — Rensis Likert, Institute for Social Research

American Statistical Association

10:00 P.M.

Informal Party

American Statistical Association, Biometric Society (ENAR) and Institute of Mathematical Statistics

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WEDNESDAY, DECEMBER 30

8:30-10:20 A.M.

Controversial Areas in Federal Statistics: The Care and Maintenance of Index Numbers

Business and Economic Statistics Section joint with American Farm Economic Association

Chairman:
Solomon Fabricant, National Bureau of Economic Research

Papers:
"Critical Problems in Price Index Construction" by B. Ralph Stauber, U. S. Department of Agriculture
"The Consumer Price Index: Technical Questions and Practical Answers" by Sidney A. Jaffe, Bureau of Labor Statistics

Discussion:
Harlow W. Halvorson, University of Wisconsin
Lazare Teper, International Ladies Garment Workers Union
Clayton Gehman, Board of Governors of the Federal Reserve System
Kenneth E. Miller, Armour and Co.

8:30-10:20 A.M.

Social Statistics: Their Organization for Policy Use

Social Statistics Section

Chairman:
Raymond T. Bowman, Office of Statistical Standards

Papers:
"The Use of Statistics in the Formulation and Evaluation of Broad Social Programmes" by Octavio Cabello, United Nations
"Health, Education and Welfare Indicators and Trends" by Luther W. Stringham, Department of Health, Education, and Welfare

Discussion:
Katherine Ellickson, AFL-CIO
Wilbur J. Cohen, University of Michigan

8:30-10:20 A.M.

Demand and Supply of Statisticians

Section on Training

Chairman:
Donald C. Riley, Office of Statistical Standards

Round Table (Panel to be announced)

WEDNESDAY, DECEMBER 30

8:30-10:20 A.M.

Reliability

Section on Physical and Engineering Sciences

Chairman:

(To be announced)

Papers:

"Irreversible Absorption Processes as Failure Models with Applications to Accelerated Life Testing" by WILLIAM ALLEN
"On Drawing Inferences in the Case of Exponential Distribution with Censoring" by JACK NADLER, Bell Telephone Labs.

Discussion:

CUTHBERT DANIEL, New York City
MILTON SOBEL, Bell Telephone Labs.

8:30-10:20 A.M.

Contributed Papers

Biometrics Section

Chairman:

MARVIN KASTENBAUM, Oak Ridge National Laboratory

Papers:

"Estimating Shelf Life of Bacterial Populations" by IRA A. DEARMON, JR., U. S. Army Biological Warfare Laboratories
"Application of Linear Regression to Frequency Graduation" by ROBERT J. BUEHLER, Iowa State University
"Disease Severity Quantitation" by CLIFFORD J. MALONEY, U. S. Army Biological Warfare Laboratories
"Some Experiences in the Practice of Medical Statistics" by ROBERT G. HOFFMAN, University of Florida
"Ties in Paired Comparison Experiments" by W. A. GLENN and H. A. DAVID, Virginia Polytechnic Institute
"Error and Non-Error Models in Bio-Assay" by K. M. PATWARY, Howard University

8:30-10:20 A.M.

Biometrics Section—Business Meeting

9:00-10:00 A.M.

Wald Lecture—IV

Institute of Mathematical Statistics

Chairman:

(To be announced)

Paper:

"Construction of Error Correcting Codes" by R. C. BOSE, University of North Carolina

9:30 A.M.

Research on Productivity, Wages, and Prices

American Statistical Association—Business and Economic Statistics Section, joint with American Economic Association

Chairman:

GERHARD COLM, National Planning Association

Papers:

"Trends in Wages, Productivity, Prices, and Profits in Major Industries" by TED ANDERSON, University of California
"Wage Escalation and 'Inside' Wage Inflation" by JOSEPH W. GARBARINO, Cornell University
"A Timing Test of the Cost-Push Inflation Thesis" by WILLIAM R. BELMONT, University of North Dakota

Discussion:

NAT GOLDFINGER, AFL-CIO
WALTER FACKLER, U. S. Chamber of Commerce
CHARLES SHULTZE, Indiana University

10:30 A.M.-12:20 P.M.

Quantification and Measurement in Biological and Social Science

Biometrics Section—Biometric Society (ENAR)—Social Statistics Section

Chairman:

WILLIAM G. COCHRAN, Harvard University

Paper:

"Efficient Conversion of Non-Metric Information into Metric Information" by ROBERT P. ABELSON, Yale University
"General Models in Biology in Relation to Statistical Inference" by CHESTER I. BLISS, Yale University

Discussion:

JEROME CORNFIELD, Johns Hopkins University

10:30 A.M.-12:20 P.M.

Invited Papers—VI

Institute of Mathematical Statistics

Chairman:

R. GNANADESIKAN, Procter & Gamble Co.

Papers:

"Moment Generating Functions of Quadratic Forms of Normal Order Statistics" by H. RUBEN, Columbia University
"Some Nonparametric Tests in Multivariate Problems" by L. WEISS, Cornell University
"The Actual Distribution of One Sample Kolmogorov-Smirnov Statistics" by M. DWASS, Northwestern University

10:30 A.M.-12:20 P.M.

Contributed Papers—V

Institute of Mathematical Statistics

Chairman:

(To be announced)

Papers:

(To be announced)

10:30 A.M.-12:20 P.M.

Discussion of the Final Report of the Advisory Committee on Weather Control

Institute of Mathematical Statistics

Chairman:

(To be announced)

10:30 A.M.-12:20 P.M.

Contributed Papers

Business and Economic Statistics Section

Chairman:

(To be announced)

Papers:

(To be announced)

Future Annual Meetings of ASA are as follows:

YEAR	*PLACE*	*HEADQUARTERS*	*DATES*
1959	WASHINGTON, D.C.	SHOREHAM HOTEL	DECEMBER 27-30
1960	PALO ALTO, CALIF.	STANFORD UNIVERSITY	AUGUST 23-26
1961	NEW YORK CITY	ROOSEVELT HOTEL	DECEMBER 27-30
1962	MINNEAPOLIS	LEAMINGTON HOTEL	EARLY SEPTEMBER
1963	CLEVELAND	CASE INST. OF TECH. AND WESTERN RESERVE UNIV.	EARLY SEPTEMBER

1959
Holt-Dryden
Texts

Elementary

ELEMENTS OF MATHEMATICAL STATISTICS

D. Ransom Whitney, *The Ohio State University*

An introduction to the concepts and methods of statistical inference, this text is aimed primarily at the undergraduate student who has completed a course in calculus. The author adopts a balanced approach between the text that gives only statistical techniques and the one that attempts complete mathematical rigor.

Sociological

BASIC COURSE IN SOCIOLOGICAL STATISTICS

Morris Zelditch, Jr., *Columbia University*

A text and workbook combined, this book offers a complete elementary course for undergraduates. Although only arithmetic is required, the work stresses the understanding of the mathematical models underlying the statistical methods. Fifty summaries of research reports on stimulating topics are integral parts of the exercises.

Economic

STATISTICS AS APPLIED TO ECONOMICS AND BUSINESS

Robert H. Wessel, *University of Cincinnati*

Edward R. Willett, *Northeastern University*

Stressing basic ideas rather than formulas and derivations, this text is designed for elementary statistics courses in business administration and economics. It is nonmathematical and nonsymbolic in both content and approach, and includes all material suitable for the student who has had a minimum of mathematical training.

HENRY HOLT and COMPANY, Inc.
383 Madison Ave.
New York 17, N.Y.

CHARACTERISTICS OF THE MEMBERSHIP OF THE AMERICAN STATISTICAL ASSOCIATION, 1958*

by **Abe Rothman,** ***Bureau of Labor Statistics*** **and**
Edgar M. Bisgyer, ***American Statistical Association***

Secretary's Note: When the 1958 *Membership Directory* was in the initial planning stages, several items of information proposed from each respondent had to be discarded for reasons of economy, etc. Among these were two items which, I feel, would have given valuable data. These were the title of one published book or article and the listing of graduate work not culminating in a degree. For the present, at least, the inclusion of this information was not feasible. It should be borne in mind that the listing of degrees both in the *Directory* itself and in the article below do not reflect such non-degree post-graduate work.

The original committee for planning the *Directory* in addition to Messrs. Rothman and Bisgyer included Harry Alpert and Maurice F. Bresnahan. Thanks are due for their help in formulating the questionnaire.

The present pattern for publication of the *Membership Directory* is about every three years. The next edition will appear in 1961. Your suggestions for further improving the usefulness of the forthcoming volume will be most welcome.

SUMMARY

Returns to the 1958 *Membership Directory* revealed that of every ten members of the American Statistical Association, nine are affiliated with one or more of the five sections of the Association. Of these, over half belong to only one section, slightly over a third belong to two sections. The Business and Economic Statistics Section has the largest following, some 56 percent of the total membership. The next largest section, Social Statistics, has 29 percent of the members while the Training of Statisticians Section, the smallest, has a following of about 17 percent.

Since 1954, the date of the preceding directory, all sections gained in membership with the largest gain, 70 percent, made by the Physical and Engineering Sciences Section; the next largest, 42 percent, made by the Biometrics Section. The Business and Economic Statistics and Social Statistics Sections had gains of about 22 percent each while the Training of Statisticians Section showed the smallest gain, only seven percent. In absolute numbers, the Biometrics and Physical and Engineering Sciences Sections added, since 1954, some 1100 new members. These are as many as were added by the two sections on business, economics and social statistics, which, in 1954, had a membership two and a half times as large as the two physical and biological sciences sections.

Eighty percent of the ASA membership are affiliated with other professional associations. Of these about one-third belong to only one other association; some 30 percent to two other organizations. A few members were affiliated with as many as 15 other organizations. In general, the member who is associated with more sections of the ASA is also a member of more outside organizations.

Over 95 percent of the members have received degrees from universities or colleges. Of these, 37 percent received a Doctorate (or equivalent); 36 percent a Master's degree; 27 percent a Bachelor's degree. The Training of Statisticians Section has the highest proportion of Doctorates, 51 percent; the Business and Economic Statistics Section, the lowest proportion—29 percent.

Approximately one-fourth of the members specialize in general methodological techniques; one-fifth in forecasting and projection; and one-fifth in planning for statistical surveys. In fields of application the largest number of members, (1231) are in business and management; the second largest, (868) are in prices, production and business activity; engineering ran a close third with 856 members. Two-thirds of the members are engaged in research; almost 30 percent in administration and management; slightly over 20 percent in teaching. Of the members who are engaged in teaching, over 60 percent have a Doctorate (or equivalent degree).

These data, as well as the more detailed tables which follow, are based on the information contained in some 5600 questionnaires which were submitted by members of the ASA for the preparation of the 1958 *Membership Directory*.

BACKGROUND

Article IV of the By-Laws of the American Statistical Association provides for the publication of a membership directory "not less frequently than once in every five years . . ." Prior to 1958, the directories tended to be a listing of members primarily; the only additional information contained was business affiliation, address and sectional interests of each member. The increase in membership and the expansion in the varied activities of

* It may be interesting to compare these findings with the results obtained from some previous studies. These articles include: Willford I. King, "Classification of Members of American Statistical Association on Basis of Duties and Interests", *Journal of the American Statistical Association*, Vol. 22, June 1927, pp. 224-226. Stuart A. Rice and Morris Green, "Interlocking Memberships of Social Science Societies", *Journal of the American Statistical Association*, Vol. 24, September 1929, pp. 303-306. Stuart A. Rice and Morris Green, "Composition of the American Statistical Association", *Journal of the American Statistical Association*, Vol. 25, June 1930, pp. 198-202. Richard L. Funkhouser, "Membership of the American Statistical Association", *Journal of the American Statistical Association*, Vol. 36, September 1941, pp. 329-342. Abner Hurwitz and Floyd C. Mann, "The Membership of the American Statistical Association—An Analysis", *Journal of the American Statistical Association*, Vol. 41, June 1946, pp. 155-170. Dickson H. Leavens, "Overlapping Membership of Societies", *The American Statistician*, Vol. 3, June-July 1949, pp. 4-5. Samuel Weiss and Abe Rothman, "The Financial and Membership Status of the American Statistical Association", *The American Statistician*, Vol. 9, April 1955, pp. 10-14.

The authors' thanks go to Donald C. Riley and Almarin Phillips for their helpful observations and comments on this article.

the Association resulted in the need for more information about each member, if the directory's value was to be enhanced. Since an enlarged directory would cost more, the amount and type of such information would, of necessity, be limited. To find out what information was most desired in the listings, a survey was made of a ten percent random sample of the members. The returns from this sample survey determined in part the questions included in the questionnaire [1], which was sent to approximately 6,600 members [2]. After a follow-up request, a total of about 5,600 completed forms were returned, a response rate of almost 85 percent. The tabulations in this article were obtained entirely from these completed forms; in fact, much more information was summarized than can be presented in the space allotted to this summary article.

SECTIONAL INTEREST AND MEMBERSHIP IN OTHER ASSOCIATIONS

A member of the Association could indicate his affiliation with any or all the sections by checking the appropriate box (or none) on the questionnaire. Of the total number reporting, 91 percent checked membership in one or more sections. Of this number 52.3 percent belong to one section only; 35 percent to two; 10.4 percent to three; 1.7 percent to four and 0.5 percent to all five sections. The Business and Economic Statistics Section has the largest affiliation of the Association's membership—some 56 percent of all members and about 58 percent of the members who are affiliated with one section only. In 1954, the date of the preceding directory, this Section was checked by 64 percent of the total membership and 67 percent of the members affiliated with one section only.

The Section on Physical and Engineering Sciences showed the largest proportionate growth in membership since 1954. In 1958 this Section had 25 percent of the total membership affiliated with it as compared with only 20 percent in 1954. Of those members affiliated with only one section, the Physical and Engineering Section had almost 17 percent in 1958 as compared with 9 percent in 1954. The actual numerical breakdown of section memberships in 1958 is shown in Table 1.

The pattern of overlapping sectional interests was obtained for the 1,785 members reporting membership in two sections. As might be expected, the largest overlap was between Business and Economic Statistics and Social Statistics (636); the second largest between Physical and Engineering Sciences and Business and Economic Statistics (242); the third largest between Physical and Engineering Sciences and Biometrics (218).

Table 1. Distribution of Sectional Interests *

Section	Number of Sections Checked					
	Total	Only One	Two	Three	Four	Five
All Sections	8,307	2,663	3,570	1,593	356	125
Biometrics	1,228	298	522	311	72	25
Business and Economic Statistics	3,145	1,548	1,144	358	70	25
Physical and Engineering Sciences	1,373	441	566	279	62	25
Social Statistics	1,635	331	896	308	75	25
Training of Statisticians	926	45	442	337	77	25

* Based on 5,596 forms returned.

The Directory questionnaire listed 26 other professional associations or societies and asked that membership in each be checked. Table 2 shows the total number of memberships in these associations by the 4,495 respondents who reported membership in at least one other association.

Table 2. Number of ASA Memberships in Selected Associations

All Associations	11,110
American Economic Association	1,227
Institute of Math. Statistics	931
Amer. Assn. for Adv. of Science	652
Amer. Soc. for Quality Control	544
American Marketing Association	537
Biometric Society	483
Econometric Society	475
Operations Research Society of America	342
American Psychological Association	333
American Public Health Association	284
American Sociological Society	252
Psychometric Society	224
Royal Statistical Society	222
Population Association of America	209
Institute of Management Sciences	196
American Finance Association	172
American Management Association	171
Association for Computing Machinery	125
American Farm Economic Association	117
International Statistical Institute	100
Industrial Relations Research Assn.	99
Regional Science Association	98
Amer. Assn. for Public Opinion Research	97
American Accounting Association	70
American Political Science Association	47
Inter American Statistical Institute	47
All Other Associations (including foreign)	3,056

Eleven hundred respondents reported no memberships in other societies.[3] The greatest number of affiliations in different associations by one person was fifteen (three members so reported). As might be expected, the number of sectional interests checked by those reporting varied directly with his memberships in other societies—the

[1] The directory questionnaire is reproduced on pages 1-3 of the 1958 *Directory*.

[2] The growth of ASA in recent years is reflected in the number of listings appearing in previous directories:

1940—3,100	names
1945—3,300	"
1951—4,700	"
1954—5,400	"
1958—6,600	"

Although about 6,600 names are shown in the 1958 *Directory*, the actual membership count at the end of that year was 6,325. The difference is the result of resignations and terminations for nonpayment of dues. (Those members who did not return the forms were listed with only name and address.)

[3] This figure taken as a proportion of the total membership in the Association, appears to be decreasing continuously. In 1945 (Hurwitz and Mann, *op. cit.*) one-third of the total membership belonged only to ASA. In 1954 (Weiss and Rothman, *op. cit.*) this had decreased to less than one-fourth. For 1958, the proportion has dropped to approximately one-fifth.

more sectional interests checked the more outside affiliations, on the average.

The growing fields of interest of the Association's membership is revealed by a comparison of the membership's affiliation with other professional societies. In 1945, 34 percent of the membership belonged to no other association; 28 percent to one other; 17 to two other; 11 to three other; and 10 percent to more than three. In 1958, with the membership twice as large as it was in 1945, only 20 percent belonged to no other association; 28 percent to one other; 23 to two other; 13 to three other; and 16 percent to more than three other associations. The close affiliation of the ASA members with the field of economics is revealed by the large number of memberships in the American Economic Association—almost one out of every five members. The next largest field, mathematical statistics, claimed one out of every six ASA members. One interesting result was the number of members, 222, who are affiliated with the Royal Statistical Society.

EDUCATIONAL LEVELS

The type of information most desired in the *Directory* (according to the responses in the pre-directory survey mentioned above) was the educational level of the members. This question was coupled with year of degree and granting institution. Table 3 presents the distribution of members by their educational level attained and by sectional interests.

Table 3. Distribution of Respondents by Highest Level of Education and Sectional Interest

Highest Level of Education	Number of Members	Sectional Interest				
		Biometrics	Bus. & Econ.	Phys. & Eng.	Social Stat.	Training of Stats.
		Number of Members				
ALL LEVELS	5,596	1,228	3,145	1,373	1,635	926
Not Reported	336 [1]	48	189	50	76	33
Level Indeterminate [2]	126	29	76	22	38	40
Bachelor's degree	1,472	257	923	386	381	146
Master's degree	1,842	370	1,116	505	510	272
Doctorate [3]	1,820	524	841	410	630	435

[1] Returns for 25 members indicated they had no college degree
[2] Mainly foreign
[3] Includes professional-medical and/or combination of two or more Doctorates

Percentagewise (omitting the indeterminate levels and information not reported [4]) we have the following picture of level of education by section:

Section	Bachelor's	Master's	Doctorate
Biometrics	22.3	32.1	45.5
Business & Economics	32.0	38.8	29.2
Physical & Engineering	29.7	38.8	31.5
Social Statistics	25.0	33.5	41.4
Training	17.1	31.9	51.0

[4] Making the assumption that members who did not report the information had no degree does not affect the relative distributions very much since the percentage of such members by section ranged from 3.7 percent to 6.2 percent.

As might be expected in a professional association, about one-third of the members have received their Doctorate (or equivalent) and another third have earned their Master's. The Training of Statisticians Section had the largest proportion of members with Doctorates, approximately 50 percent; the Business and Economic Statistics Section the smallest proportion, approximately 29 percent.

One item of interest, particularly to the National Office, is the year the Bachelor's degree was granted. This can be used as an indication as to whether younger persons are entering the Association (and the statistical professions) in sufficient numbers to insure an infusion of "new blood" and a continuation of the Association's growth. Table 4 presents this information for each of the three degrees. Since earning a degree requires time, the earlier the year in which a Bachelor's degree was received, the larger the proportion of Master's and Doctorate's degrees that can be expected.

Of the members who received their Bachelor's degree since 1950, some 16 percent have also earned their Doctorate; of those receiving their degree during 1935-1949, some 37 percent have their Doctorate; the 1920-1934 group shows 42 percent and of the 1905-1919 group, 55 percent. There are 23 members who received their Bachelor's degree before 1905; 16 of them have their Doctorate (or equivalent). Of the youngest group of ASA members, 1,131 who received their Bachelor's degree since 1950, some 44 percent have received their Master's while an additional 16 percent have already earned their Doctorate.

An attempt was made to use the information on date of Bachelor's degree to determine whether younger people are joining the Association. The assumption was made that the Bachelor's degree was earned at the age of 22 and the age distribution of the Association was compared with the 1958 age distributions of the total population of the United States and of the white male population, for persons 20 years and older. The age group 20-29 years, (Bachelor's degree after 1950), comprise 21.7 percent of the Association's membership which is about one percent more than the proportion found in the population, total or white male. The age group 30-44 (Bach-

Table 4. Distribution of ASA Members by Highest Level of Education and by Year of Bachelor's Degree
(Based on 5,260 returns to 1958 ASA Membership Directory)

Date of Bachelor's Degree	Highest Level of Education				
	Total all Levels	Bachelor's Degree	Master's Degree	Doctorate	Indeterminate [1]
	Number of Members				
Total [2]	5,260	1,472	1,842	1,820	126
Before 1905	23	4	2	17	—
1905 - 1919	251	60	47	137	7
1920 - 1934	1,379	342	421	590	36
1935 - 1949	2,430	620	858	898	54
1950 - 1958	1,131	429	496	183	23
Date not reported	46	17	18	5	6

[1] Mainly foreign
[2] Total does not include 336 members with no degree or not reporting information

Table 5. Distribution of ASA Membership by Year Bachelor's Degree was Granted and by Sectional Interests

Year of Degree	Number Reporting One Section or More	Sectional Interests: Total Sections Checked	Bio-metrics	Bus. & Econ.	Phys. & Eng.	Social Stat.	Training of Stats.
		Number of Members					
Before 1905	17	26	2	13	1	9	1
1905 - 1919	220	339	47	154	23	77	38
1920 - 1934	1,246	1,933	278	804	203	429	219
1935 - 1949	2,259	3,824	558	1,409	690	724	443
1950 - 1958	1,056	1,725	288	551	400	298	188
Date not reported	293	460	55	214	56	98	37
TOTAL	5,093	8,307	1,228	3,145	1,373	1,635	926

elor's degree 1935-49) claimed 46.6 percent of the Association membership as compared to about 33 percent in the population. For the age group 45-59, the Association had the same proportion as did the population, slightly over 26 percent. For the age group 60 and over, the general population (and also white male) had almost 4 times the proportion found in the Association, 20 percent compared to 5 percent. Because of the assumptions about age based on degree date, the comparisons should be used with great caution. However, the regular pattern of the ASA having a larger proportion of younger people appears strong enough to lead to the statement that younger people are joining the Association.

Table 5 presents the distribution of the Association's membership by year of degree and by sectional interests. The physical and biological sciences sections (Physical and Engineering, Biometrics) have the highest proportions of "younger" (degree in the 1950-58 period) members, 29 percent and 24 percent; the two sections, Business and Economic Statistics and Social Statistics, each had the smallest percentage, 18. Since 1954, the absolute gain (almost 1100 members) in membership in the former sections was as large as the gain in the two latter sections, even though their membership in 1954 was only 40 percent as large.[5]

[5] Churchill Eisenhart, a vice-president of ASA requested that Table 5 be prepared. His letter, accompanying the table, stated in part, ". . . it occurred to me that an additional tabulation showing the "Distribution of ASA Membership by Year Bachelor Degree was Granted and By Sectional Interests" as of 1958 might be very illuminating. Such a tabulation would reveal, I believe, the changes in the pattern of sectional interests that many of us have felt have been taking place among our membership in recent years." The information in the table ". . . clearly reveals the steadily increasing interest in the Physical and Engineering Sciences and the Biometrics Sections among the younger (and presumably newer) members of the Association, and the corresponding relative decline of interest in the Business and Economics and the Social Statistics Sections. The "top management" of the Association cannot, I feel, afford to ignore these trends; and, in fairness to the membership, they should be let in on "the facts" by inclusion of (this) table among those to be published in THE AMERICAN STATISTICIAN."

Table 6. Distribution of Members by Methodological Techniques and by Sectional Interests

Methodological Techniques	Number of Members Reporting Sectional Interests	Sectional Interests: Total All Sections	Bio-metrics	Bus. & Econ.	Phys. & Eng.	Social Stats.	Training of Stats.
TOTAL [1]	5,093	8,307	1,228	3,145	1,373	1,635	926
Methodological techniques (general)	1,287	2,290	402	713	373	453	349
Planning or reviewing plans for statistical surveys or data collection	955	1,575	197	696	71	482	129
Collecting or directing the Collection of statistical data	733	1,115	138	534	49	308	86
Editing, coding or tabulating statistical data	168	261	44	106	17	76	18
Sampling	534	927	138	354	126	181	128
Design of experiments	906	1,577	485	166	515	210	201
Construction of tests and measurements	272	447	101	60	47	174	65
Index number construction	130	183	5	128	3	32	15
Scaling	69	105	23	17	3	54	8
Forecasting and projecting	1,114	1,624	41	1,060	104	288	131
Research in statistical methods	486	945	223	167	252	117	186
Classification	39	58	11	20	4	17	6
Actuarial methods	129	233	33	95	17	66	22
Quality control	388	646	83	143	311	22	87
Operations research	699	1,229	140	471	380	133	105
Graphic presentation	204	278	13	180	21	43	21
Statistical techniques and computers	403	669	93	220	197	89	70
Statistical organization and administration	358	630	68	274	59	158	71
Other	106	178	34	52	39	30	23
No techniques reported	1,206	1,644	184	834	158	337	131

[1] Since each member was requested to indicate two techniques, the totals of the distributions by techniques will be twice the totals shown.

METHODOLOGICAL TECHNIQUES, FIELDS OF APPLICATION AND TYPES OF STATISTICAL ACTIVITY

Because of the widespread interests of the members of ASA, obtaining characteristics about their work is a rather complex undertaking. The application of statistical methods can be found in almost every field of scientific endeavor. This necessitated some very painstaking planning to insure the inclusion of the various areas and activities without producing a multi-page questionnaire that would result in a large non-response rate or in inaccurate answers. The final schedule provided for three main questions about each respondent: the kind of techniques used in his work, the fields of application, and the types of statistical activity in which the member was engaged. Each member was requested to check not more than two of the list of items in each question. In some cases this undoubtedly restricted the respondent, but space and tabulation problems had to be considered in compiling the *Directory*.

Tables 6, 7, and 8 present the distribution of the Association's members by the various characteristics of their activities and reveal most graphically the broad and varied interests of the membership. One of every four members is engaged in general methodological techniques, one of every five in forecasting. Members were found in each of the 18 different categories listed in the methodological techniques area.

The fields in which the members applied their activities were also very varied. Every one of the twenty-seven fields was checked by some members, from 10 members in Astronomy to 1,231 (almost 25 percent) in Business and Management.

Research was the major type of statistical activity most widely engaged in by the members, two of every three members reporting such activity.

An important cross-classification is given in Table 9 where the major types of statistical activity are distributed by fields of application.

CONCLUSIONS AND SUPPLEMENTARY REMARKS

What is not most immediately apparent from the 1958 *Directory* is the size and complexity to which ASA has grown. Ten years ago there were only two formally organized sections (Biometrics and Training). There are now five sections and over ninety percent of the members indicate interest in one or more of these. It is safe to assume that other sections will be chartered in the future as statistical activities continue to grow and expand to new fields.

Historically, the economic and social statistics interests have been the largest within the Association. More recently, particularly in the last two decades, the physical and biological sciences have increased sharply. The present survey illustrates quite clearly the extent of varying

Table 7. Distribution of Members by Field of Application and by Sectional Interests

Field of Application	Number of Members Reporting Sectional Interests	Sectional Interests					
		Total All Sections	Biometrics	Bus. & Econ.	Phys. & Eng.	Social Stats.	Training of Stats.
TOTAL [1]	5,093	8,307	1,228	3,145	1,373	1,635	926
Economics and Economic Theory (general)	753	1,216	63	727	82	212	132
Prices, production and business activity	868	1,270	32	860	66	191	121
Domestic commerce and international trade	146	202	6	144	5	30	17
Transportation and public utilities	185	274	7	174	37	40	16
Public finance and taxation	151	215	2	147	6	41	19
National income, flow of funds, input-output	287	454	19	284	16	96	39
Labor and employment	330	572	14	317	14	191	36
Investments and securities	257	357	8	249	17	45	38
Agricultural Economics	159	263	35	141	17	35	35
Astronomy	10	22	6	1	8	2	5
Biology	298	538	289	26	111	31	81
Business and Management	1,231	2,028	118	1,094	340	254	222
Chemistry	223	388	106	30	205	7	40
Demography	327	586	108	140	14	264	60
Earth Sciences	67	123	29	18	51	8	17
Education	257	463	70	61	49	167	116
Engineering	856	1,490	247	218	816	43	166
Marketing and Advertising	506	846	52	472	53	202	67
Medicine	317	562	289	34	56	101	82
Opinion Polling	122	210	12	78	15	81	24
Physics	189	316	61	24	184	8	39
Political Science	34	49	3	18	1	25	2
Psychology	371	660	167	57	55	284	97
Social Service	93	157	18	30	2	90	17
Sociology	191	311	38	45	5	181	42
Vital Statistics and Public Health	379	673	288	82	24	205	74
Other	317	534	90	186	111	104	43
Field not reported	1,262	1,835	279	633	386	332	205

[1] Since each member was requested to indicate two fields of application, the totals of the distributions by field of application will be twice the totals shown.

Table 8. Distribution of Members by Major Type of Statistical Activity and by Sectional Interests

Major Type of Statistical Activity	Number of Members Reporting Sectional Interests	Sectional Interests					
		Total All Sections	Biometrics	Bus. & Econ.	Phys. & Eng.	Social Stats.	Training of Stats.
TOTAL [1]	5,093	8,307	1,228	3,145	1,373	1,635	926
Research	3,405	5,631	937	1,990	954	1,173	577
Professional consultation	879	1,548	254	561	243	302	188
Administration, Management	1,484	2,346	267	1,105	317	484	173
Operational activity	786	1,230	137	511	306	194	82
Teaching	1,159	2,151	348	613	281	393	516
Professional writing & editing	352	582	78	238	57	146	63
Professional library or museum activity	7	13	2	4	3	3	1
Student	228	392	88	95	74	75	60
Other	22	40	6	13	7	6	8
Activity not reported	1,864	2,681	339	1,160	504	494	184

[1] Since each member was requested to indicate two major types of statistical activity, the totals of the distributions by activity will be twice the totals shown.

interests within ASA—by sectional interests, by fields of application, by type of activity. It points to the need for a broad, overall program if *all* these different appetites are to be satisfied.

The 1958 *Directory* contains the description of the characteristics of ASA members and the work in which they are engaged. This information is not readily accessible since the data are arranged alphabetically by name of member rather than in an appropriate logical sequence. This analysis of the membership attempts to prepare such summaries. However, there are so many characteristics that presenting all the summaries would require considerable space. This article, therefore, presents selected summaries only. Other tables which are available upon request to the Secretary of the Association are:

Distribution of Members by Number of Sectional Interests

Distribution of Members Reporting Two Sectional Interests by Patterns of Overlapping Interests

Table 9. Distribution of Members by Field of Application and by Major Type of Statistical Activity

Field of Application	Major Type of Statistical Activity									
	Total All Activities	Research	Professional Consultation	Administration, Management	Operational Activity	Teaching	Professional Writing	Professional Library	Student	Other
TOTAL [1]	8,971	3,651	943	1,611	854	1,247	376	11	252	26
Economics & Economic Theory (general)	1,332	546	126	211	90	227	80	1	45	6
Prices, production & business activity	1,501	589	173	325	144	162	88	2	17	1
Domestic commerce & international trade	255	91	29	61	31	23	17	1	2	—
Transportation & public utilities	311	118	37	79	43	14	12	1	6	1
Public finance and taxation	267	101	29	49	26	36	19	1	5	1
National income, flow of funds, input-output	503	215	45	78	34	81	43	—	6	1
Labor and employment	570	233	56	131	64	47	28	—	11	—
Investments and securities	413	149	68	87	32	48	16	1	11	1
Agricultural Economics	279	113	27	45	34	40	13	—	6	1
Astronomy	22	8	2	2	—	4	1	—	4	1
Biology	533	242	72	34	27	112	13	1	32	—
Business and Management	2,191	713	240	597	261	272	65	1	34	8
Chemistry	364	188	22	51	51	31	9	1	11	—
Demography	610	250	64	113	44	83	43	1	9	3
Earth Sciences	117	58	16	6	6	22	7	—	2	—
Education	516	186	47	54	31	161	18	2	14	3
Engineering	1,469	625	154	200	223	173	35	2	55	2
Marketing and Advertising	917	407	123	235	47	75	17	—	12	1
Medicine	578	255	79	80	22	90	19	1	29	3
Opinion Polling	250	114	42	53	9	23	4	—	4	1
Physics	328	158	32	30	39	35	10	—	24	—
Political Science	61	20	10	13	9	5	—	—	4	—
Psychology	773	364	63	80	35	173	25	1	30	2
Social Service	162	69	18	32	12	22	8	1	—	—
Sociology	352	164	21	40	13	81	17	2	13	1
Vital Statistics and Public Health	700	296	73	138	54	76	34	—	27	2
Other	596	252	63	109	78	46	34	—	10	4
Field not reported	1,972	778	155	289	249	332	77	2	81	9

[1] Since each member was requested to indicate two fields of application and two statistical activities, the figures shown reflect such multiple entries. The totals shown for major types of statistical activity have been adjusted to number of members and will be only half as large (each entry appears in two applications classifications) as the totals secured by summing the component entries.

Distribution of Members by Membership in Selected Associations and by Number of Memberships in such Associations

Comparison of Number of ASA Sectional Interests and Number of Memberships in Other Associations

Distribution of Members by Methodological Techniques and by Highest Level of Education

Distribution of Members by Methodological Techniques and by Major Type of Statistical Activity

Distribution of Members by Field of Application and by Highest Level of Education

Distribution of Members by Major Types of Statistical Activity and by Highest Level of Education

One final comment about the summaries should be made known since it affects the membership in general. To develop the various tables, the information contained in the membership returns were incorporated in punched cards containing names as well as the many characteristics reported. These cards are available for special processing to select those members having a specified set of attributes and characteristics from the entire file. Listings of this type have proved to be of value to agencies and organizations searching for certain types of personnel. Several such listings have already been made.

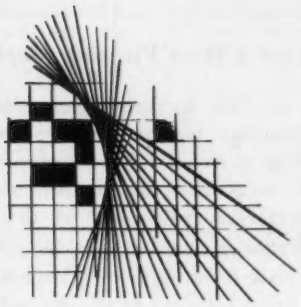
In order to expedite replies to such requests, complete listings of members have been made for each category shown in Field of Application, Methodological Techniques, and Major Type of Statistical Activity (see *Directory* for complete listing under each heading) and copies* of particular sections may be requested from the Secretary of the Association. Copies of the complete listings have been made available to selected agencies, the National Science Foundation, the Office of Statistical Standards (Bureau of the Budget) and the Bureau of Labor Statistics for general reference purposes.

* If list is lengthy, there may be a small charge for this service.

RECOMMENDATIONS ON AVAILABILITY OF FEDERAL STATISTICAL MATERIALS—CONTINUED FROM PAGE 15

for studies clearly in the public interest, too complex to be carried on under other arrangements, to be carried out by workers of known competence to make valid use of the materials, working in close cooperation with the agency staff.

VII. Appropriate advance planning by agencies will promote maximum exploitation of data collected by the Federal Government by one or another of the above methods. Anticipation of demands for further tabulations beyond those planned for publication may be reflected in questionnaire design, card design and tabulation procedures. The relatively few surveys which lend themselves to duplication of original materials for use outside the agency can probably be identified in advance, so that planning may take this use into account. In general, any steps to make the survey procedure a matter of systematic record, intelligible to other competent research workers, will aid users to make valid use of the data."



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QUESTIONS AND ANSWERS

Edited by ERNEST RUBIN
U. S. Department of Commerce and American University

Further Remarks on a Data Plotting Machine

Discussion by Britton Harris*

In the June issue of THE AMERICAN STATISTICIAN Robert G. Hoffman outlines his requirements for a much-needed data-plotting machine. I have experimented with a method which meets most, but not all, of his requirements; its operation suggests some of the difficulties inherent in meeting his need at reasonable cost.

In connection with work involving a very large number of economic time series, I desired an efficient method of plotting both the original time series and the residuals resulting from multiple correlations. Both an IBM 650 and IBM accounting equipment were accessible. A card layout was developed which permitted the printing of X's at will in any of 75 horizontal positions.[1] Any number of cards might be used for "lines" in the vertical direction. 101 lines were taken as the practical limit for the 650 and this exceeds all actual requirements. For rapid interpretation of results, 11 lines are very satisfactory. Cards for this print-off are produced by the 650 in a program which performs the following operations:

1. Read and store the observations.
2. Reduce the observations to deviations from the mean.
3. Determine the largest absolute value among the deviations.
4. Scale all deviations so that the largest will just fall on the highest or lowest line, given the number of lines being used.
5. Place a digit in the correct position of the correct "word" of the correct line of the chart, for each deviation.
6. Punch the chart in card form, preceding each group of cards by a header card showing the identification of the series, the number of observations, the algebraic sum of the deviations, the largest absolute deviation, the number of lines in the chart, and the scale factor employed.

In the print-off of this chart, the lines are numbered symmetrically plus and minus from a zero center line. The horizontal scale is not numbered, but this scale can easily be supplied.

At a later point, another 650 program was developed to calculate and punch out a scatter diagram for similar small numbers of observations. Similar procedures are followed, but to allow for the possibility that more than one observation might fall in the same row and column, the actual digital count of the observations (up to 9) is printed. Zeros do not print.

Figure 1.
21x21 scatter diagram of growth characteristics of 46 growing sub areas in the Philadelphia Region. An exponential or double-logarithmic plot reduces the scatter of this array.

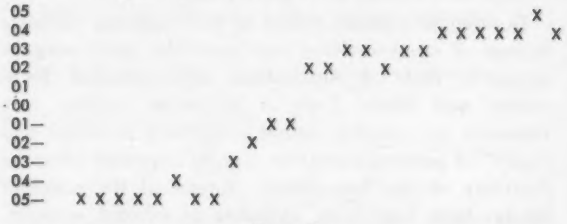

Figure 2.
This is a time-series — on U. S. wage-earner/production worker employment in apparel — 1919 to 1954 — Census of Mfg. & BLS data. Each class interval in the Y-direction represents slightly less than 60,000 workers.

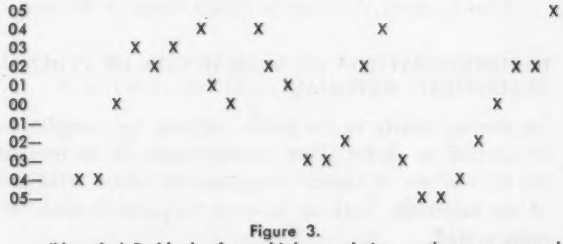

Figure 3.
(Negative) Residuals of a multiple correlation on the same apparel series. Each class interval in the Y direction represents slightly less than 15,000 workers. Note strong auto-correlation.

In a fairly large run of either program with a fairly small number of lines, ½ minute or less is required for each finished chart.

From a consideration of these procedures, we can see that the storage of results is the pivotal problem in a data-plotting machine. In equipment with adequate storage, we can in one pass of the input determine the means, scale the data, and set up a "table" corresponding to the final graph. With a fairly small table, a 650

[1] An X is printed of the 407 by the expedient of punching a "7" wherever an X is desired, and emitting zeros into all active positions. Zero print is *not* wired.

* University of Pennsylvania

(Continued on back cover)

NEWS ABOUT MEMBERS

Richard E. Beckwith received the Ph.D. degree in Mathematical Statistics from Purdue University in May 1959. He has been a senior research engineer at the Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California, following his resignation from the staff of Purdue University, in September, 1958.

Max A. Bershad, formerly Chief of the Sampling Research Branch in the Statistical Research Division of the Bureau of the Census, has been appointed Assistant Chief of that Division.

Herbert Bienstock of the New York office of the Bureau of Labor Statistics has been appointed Deputy Regional Director.

Allan Birnbaum has been appointed Associate Professor of Mathematical Statistics in the Department of Mathematics and the Institute of Mathematical Sciences at New York University.

Elwood L. Bombara has taken a position as Reliability Engineer with Thiokol Chemical Corporation, Elkton, Maryland.

James W. Brackett, Analytical Statistician (Demography) in the Office of the Assistant Director, Demographic Fields, has been appointed Chief of the Estimates and Projections Branch of the same office.

Ralph A. Bradley has joined the faculty of the Florida State University at Tallahassee, Florida. He will be Chairman of the Department of Statistics at the University. During the past nine years, Dr. Bradley has been Professor of Statistics and consultant to the Agricultural Experiment Station at the Virginia Polytechnic Institute.

Dermott A. Breault, Sylvania Electric Products Inc., Waltham, Massachusetts, has been promoted to Senior Programmer. He is currently with the Electronic Computing Section of the Waltham Laboratories.

Louis F. Buckley, formerly Deputy Director of the Boston Regional Office of the Bureau of Employment Security, has been appointed Director of the New York Regional Office of the Bureau of Labor Statistics.

E. Douglass Burdick returns to the Department of Economic and Social Statistics, Wharton School, University of Pennsylvania in September 1959, after a three year leave of absence. In June, 1956, he was given a leave of absence to accept a two year assignment as Professor of Biostatistics at the High Institute of Public Health, Alexandria, Egypt, as part of the team of USOM/Egypt. After evacuation from Egypt in October, 1956, he was reassigned to TCM/India, where he was Statistical Advisor to the Health Division of the Planning Commission of the Government of India.

Thomas L. Burnett has been appointed Staff Mathematician, Reliability Analysis, at the Owego facility of International Business Machines Corporation. The Owego, New York, facility is part of the Corporation's Federal Systems Division and is engaged in the research, development and production of bombing, navigation, and missile guidance systems and other projects.

Irving W. Burr, Professor of Mathematics and Statistics at Purdue University, has been awarded the Shewhart medal by the American Society for Quality Control.

Vincent E. Cangelosi, who attended the Regional Summer Session in Statistics at North Carolina State College as a National Science Foundation grantee, has a new position on the Division of Commerce Studies faculty of Louisiana State University in New Orleans.

Gary Carlson, formerly of the Western Data Processing Center at UCLA, has joined the Industrial Dynamics staff at Hughes Aircraft Company, Culver City, California as a Research Psychologist.

Douglas G. Chapman has returned to the Department of Mathematics at the University of Washington, Seattle, after a year's leave of absence with the Department of Experimental Statistics, North Carolina State College, Raleigh, North Carolina.

Arnold Chase, formerly Chief of the Division of Construction Statistics of the Bureau of Labor Statistics, has been designated as Special Assistant to the Commissioner of Labor Statistics.

Gregory C. Chow was appointed Associate Professor of Managerial Economics, Graduate School of Business and Public Administration, Cornell University, July 1, 1959.

A. Clifford Cohen, Jr. has been named Director of the newly established University of Georgia Institute of Statistics in Athens, Georgia.

William S. Connor has resigned from the Statistical Engineering Laboratory of the Applied Mathematical Division, National Bureau of Standards to join the staff of the Research Triangle Institute in Durham, North Carolina.

Donald H. Davenport, formerly Chairman of the Department of Business Administration and Director of the Business Research Center at Syracuse University, has been appointed Deputy Commissioner for Economic Development of the New York State Department of Commerce.

Samuel J. Dennis, formerly Survey Statistician in the Office of the Assistant Director for Statistical Standards, Bureau of the Census, has been appointed Chief of the newly established Construction Statistics Office.

William J. Dewey has accepted a research assistantship in the Department of Medical Genetics at the University of Wisconsin. He will be doing research on the genetics of mental retardation and working on his Doctorate.

Bruce A. Drew has recently been appointed Statistician, Experimental Design, at the Pillsbury Company, Refrigerated Products, Research and Quality Control Division, Louisville, Kentucky.

John W. Dyckman will be a Visiting Professor of City and Regional Planning at the University of California at Berkeley during the 1959-60 academic year.

Sylvain Ehrenfeld, Associate Professor at New York University, is presently visiting the Technion (Israel Institute of Technology) in connection with a three-year joint project of the U. S. Government, New York University and Israeli Institutions. The work involves preparation of courses, case material and teaching of a program in statistics and operations research as part of a curriculum for the newly established Graduate Department of Industrial and Management Engineering.

Lenore A. Epstein has been appointed Assistant Director, Division of Program Research, Social Security Administration.

I. S. Falk has been retained by the United Steelworkers of America to survey and assess all health service and insurance programs under collective bargaining contracts and to formulate a long-range health insurance program for them.

Roger H. Farrell has finished the requirements for Ph.D. at the University of Illinois. He will be an instructor at Cornell University.

Roger W. Fingado has accepted a position with IBM as a member of the Market Research staff of the General Products Division.

Franklin M. Fisher has been appointed Assistant Professor of Economics, University of Chicago.

Barbara Fox has been appointed an Associate Member of the Technical Staff of Bell Telephone Laboratories, Inc. in its Electro-Mechanical Development Department at Whippany.

K. R. Gabriel is returning this month to a teaching post at the Department of Statistics of the Hebrew University at Jerusalem after two years' stay as a postdoctoral visitor at the Department of Statistics at the University of North Carolina.

Morris Goldman, formerly Chief of the Commodities and Materials Data Branch, Industry Division, Bureau of the Census, has transferred to the National Income Division of the Office of Business Economics, where he will work in the field of purchases and sales of major industries.

G. Jack Gravlee has accepted a position as Instructor in the Department of Speech at the University of Houston, Houston, Texas.

Irwin Guttman has been appointed Associate Professor in the Department of Mathematics, McGill University.

Morris Hamburg, University of Pennsylvania, has been elected a Fellow of the American Society for Quality Control.

Robert H. Hanson, formerly a mathematical statistician in the Statistical Research Division, Bureau of the Census, has transferred to the Statistical Methods Office as a supervisory mathematical statistician.

John A. Harrington has been appointed Assistant Director of the Production Planning Division at the Kodak Park Works plant of the Eastman Kodak Company.

B. A. Holmes' new work is with the Canadian Government Survey of Capital Expenditures. He is studying methods of improving the annual estimates made from the sample survey.

Abner Hurwitz, who has been on leave of absence in Burma for two years, has rejoined the staff of Division of Prices and Cost of Living, Bureau of Labor Statistics.

Winfield Hutton is Consumer Economist at the Federal Reserve Bank of Atlanta. His primary research is in the field of consumer income, spending, and saving.

Sidney A. Jaffe, formerly Division Statistician in the Division of Prices and Cost of Living, Bureau of Labor Statistics, has been designated Assistant Division Chief for Statistics.

B. W. Kelly has transferred to the Florida office of the Agricultural Estimates Division, Agricultural Marketing Service, USDA, as a mathematical statistician.

Nathan Keyfitz, Senior Research Statistician in the Dominion Bureau of Statistics, Ottawa, has accepted a full-time appointment as Professor of Political Economy at the University of Toronto, Toronto, Canada.

Edgar P. King has been named head of the Statistical Research Department at Eli Lilly & Company. This is a new department which will provide statistical services to all components of the research function.

Carl F. Kossack has resigned as head of the Department of Mathematics and Statistics at Purdue University to take a position as Manager of the Statistical Group, IBM Research Center, Yorktown Heights, New York.

Simon S. Kuznets, Professor of Political Economy of the Johns Hopkins University, was awarded an honorary degree of Doctor of Science by Harvard University where he was Frank W. Taussig Research Professor of Economics during the 1958-59 year. He was cited as "a scientist-statistician who with patient skill measures the ups and downs in our economy."

Emanuel Landau is now back with the Air Pollution Medical Program, Public Health Service, Washington, D. C., having completed a two-year assignment with the California State Department of Health in Berkeley.

George C. Lanphere left Lockheed Missiles and Space Division in Palo Alto, Californa in June to accept employment with the Martin Company, Denver Division, as an engineer in the Digital Processing Section of the Engineering Support Department.

Paul E. Leaverton has returned to Iowa State University in Ames for graduate study in statistics.

Benjamin Lipstein, Associate Research Director of Benton & Bowles, Inc., New York City, has been appointed Adjunct Professor of Statistics at the City College, Bernard M. Baruch School of Business and Public Administration.

Jacob Lotven, formerly with the Division of Construction Statistics of the Bureau of Labor Statistics, has joined the staff of the Division of Productivity and Technological Developments.

Harriet Lubin, formerly Chief of the Research Statistics Section of ICA in Saigon, has joined the staff of the Statistical Methods Office of the Bureau of the Census as Survey Statistician (General).

Ernest J. Lytle, Jr., formerly Associate Research Professor at the Statistical Laboratory, University of Florida, has recently accepted a position as Statistician and Senior Staff Member with the Research Division of Radiation, Inc., Orlando, Fla.

Ralph A. Maggio is in charge of operations research, Research and Development Department, National Steel Corporation.

Milton Maier received his Ph.D. in Psychological Measurement from Purdue University on July 31 and is currently employed by the Personnel Research Branch, Department of the Army, Washington, D. C.

James J. Maslowski, formerly a statistician (Demography) in the Population Division, Bureau of the Census, has transferred to the International Statistical Programs Office as Chief of the Training Branch.

Frank Meissner, Marketing Research Analyst at the Crown Zellerbach Corporation, has become a member of the editorial staff of Marketing in Review, *Journal of Marketing.*

Albert Mindlin, formerly Technical Assistant to the Chief, Statistics Branch, Bureau of Old Age and Survivors Insurance, has been appointed Chief Research Statistician, Department of General Administration, Government of the District of Columbia.

Hugh J. Miser, formerly Deputy Assistant for Operations Analysis at Hq US Air Force, has joined the staff of the Research Triangle Institute of Durham, North Carolina, as Head of its Operational Sciences Laboratory.

Richard F. Muth has been appointed Associate Professor of Urban Economics in the Graduate School of Business, The University of Chicago, and will conduct a workshop in urban economics.

John Neter, formerly with the University of Minnesota, has been appointed as Supervisory Mathematical Statistician in the Statistical Research Division, Bureau of the Census.

Robert W. Paterson, Professor of Economics and Director of Business and Economic Research at the University of South Carolina, has resigned to become Professor of Business Research and Director of the Bureau of Business and Economic Research at the University of Missouri, Columbia, Missouri.

Victor E. Paulos, a member of the Technical Staff of the Space Technology Laboratories, has accepted the position of Senior Quality Control Engineer at the Texas Instrument Company, Dallas, Texas.

Walter Romm, formerly with the First Army Headquarters, Governor's Island, New York, has accepted an appointment as Senior Statistician with the New York City Department of Correction. He will conduct and correlate the statistical program of the department as it relates to the operational, administrative, and professional functions of the division.

Willard N. Runquist is now Assistant Professor of Psychology at Pomona College, Claremont, California.

Leo F. Schnore, until recently an Assistant Professor of Sociology and Biostatistics at the University of California (Berkeley), has accepted an appointment as Associate Professor of Sociology at the University of Wisconsin, where he will be engaged in teaching and research in demography, human ecology, and urban sociology.

Vincent Schultz, Associate Professor of Biostatistics, University of Maryland, has been granted a one year leave of absence to work with Environmental Sciences Branch, Division of Biology and Medicine, U. S. Atomic Energy Commission.

Charles F. Schwartz, formerly Assistant Director in the Office of Business Economics, has accepted a position with the International Monetary Fund.

Helen E. Scott has joined the staff of the Office of the Secretary, Department of the Interior, as Statistician-Draftsman.

O. N. Serbein, formerly Associate Professor of Insurance and Statistics at Columbia University, has accepted a position as Professor of Insurance, Stanford University.

Jack S. Silver, formerly Supervisory Mathematical Statistician, has been named Chief of the Field Methods Research Branch of the Field Division, Bureau of the Census.

Harold Silverstone, formerly Senior Lecturer in Mathematics at the University of Otago, New Zealand, has now taken up the post of Senior Lecturer in the Department of Social and Preventive Medicine, University of Queensland, in which capacity he will act as Medical Statistician of the Department and as consultant to the Medical Faculty.

Hyman Steinberg, formerly Economic Analyst with the National Industrial Conference Board, has joined the staff of the Office of Special Studies, National Science Foundation, as Science Program Analyst.

Joseph Steinberg, formerly Chief of the Statistical Methods Branch in the Population Division, Bureau of the Census, has been appointed Chief of the newly established Statistical Methods Office.

Robert Summers, formerly Assistant Professor of Economics and Staff Member, Cowles Foundation, Yale University, and newly appointed Associate Professor, Department of Economics, University of Pennsylvania, is on leave during 1959-60 to serve as an economist with the Rand Corporation, Santa Monica, California.

Perry D. Teitelbaum has accepted a two-year appointment as Professional Officer in the Division of Economic and Technical Assistance of the International Atomic Energy Agency in Vienna. He was formerly Senior Economist at the Corporation for Economic and Industrial Research.

J. Frederick Verigan has been appointed Manager of Quality Control for the Ormet Corporation, Hannibal, Ohio.

Marvin Wilkerson, formerly with the Division of Construction Statistics of the Bureau of Labor Statistics, has joined the staff of the Division of Prices and Cost of Living.

Harold E. Wright, Boston University, is now working in the Employee Relations Department for Standard Oil Company (Ohio) as a Jr. Research Assistant, Main Office, Cleveland, Ohio.

Charles F. Wrigley has been promoted to Professor of Psychology at Michigan State University.

Howard Whipple Green died of a heart attack on July 8th, in Cleveland, at the age of 66. Educated at Massachusetts Institute of Technology and at Clark and Harvard Universities, Mr. Green entered the field of sanitary engineering and bacteriology. His career included work on public health projects in this country, the Panama Canal Zone, and Puerto Rico; an associateship in public health administration at Western Reserve University's School of Medicine; positions with the Cuyahoga County Public Health Association and the Cleveland Health Council; and directorship of metropolitan Cleveland's real property inventory. He served as consultant to several Federal government agencies, and was a district supervisor for the Bureau of the Census. One of his major contributions was his leadership in the development of Census tracts. He chaired the Committee on Census Enumeration Areas of the American Statistical Association from its organization in 1931, and had served on the ASA Census Advisory Committee since 1952. He was a Fellow of the American Statistical Association.

Vladimir S. Kolesnikoff died of cancer on July 11th, in Washington at the age of 73. Born at Samara, Russia, Mr. Kolesnikoff studied at St. Petersburg University. He worked as a journalist before the first World War, and during that war served in several official positions with the Russian provisional (Kerensky) government. He was briefly Secretary of State for Foreign Affairs of the Provisional Government at Vladivostok, the last anti-Bolshevik regime in Russian territory. Coming to this country in 1921, he became an American citizen in 1926. He did post-graduate work at Columbia University and worked on the research staff of the National Bureau of Economic Research and the Brookings Institution before joining the U. S. Central Statistical Board (the predecessor of the present Office of Statistical Standards, Bureau of the Budget) in 1934. He served as economist and statistician with the Bureau of the Budget until his retirement in 1956, and as consultant until 1958. He was known primarily for the leading role he played in the development of the Standard Industrial Classification and the Standard Commodity Classification, having served as chairman of the interdepartmental technical committees responsible for the development of these classifications. He was also called upon by the Statistical Office of the United Nations as one of an international group of experts to develop the International Standard Industrial Classification of all Economic Activities and the Standard International Trade Classification. Mr. Kolesnikoff was a Fellow of the American Statistical Association.

David Van Dantzig died of a sudden heart attack on July 22nd, at the age of 58. He was Professor at the University of Amsterdam, and Head of the Departments of Mathematical Statistics and Applied Mathematics of the Mathematical Center, Amsterdam, The Netherlands. Professor Van Dantzig had been elected a Fellow of the American Statistical Association at the 1958 Annual Meeting in recognition of his extensive contributions to mathematical statistics and its economic applications, and his leadership in major scientific organizations in The Netherlands.

CHAPTER NOTES

Austin

Four meetings were held during the second half of the 1958-59 year. On January 13, 1959, the Austin Chapter met in luncheon meeting at the University Tea House to hear Mr. Ross Erwin, statistician from the Governor's Office of the Budget, discuss his use of statistics. The next bi-monthly meeting was held March 11th at Villa Capri to hear Mr. Dan Hilliard of the local IBM office discuss "The IBM 305 RAMAC as a Statistical Tool." The meeting was the best in attendance in several years. On May 13th, the Chapter heard Mr. Glenn Ivy, Projects Director from the State Auditor's office, and a panel of workers from the Texas Research League analyze "Tax Audits in the State Comptroller's Office." On August 15th, the Chapter President, John R. Steele, narrated a film strip, "Voice Beneath the Sea." Officers were elected at this meeting also.

The new officers are:

President—N. K. WOERNER, Manager of Statistical Services Texas Department of Public Safety

Vice-President—A. A. BURGER, Director of Texas Research League

Secretary-Treasurer—JOHN LYMBEROPOULOS, Instructor of Statistics, College of Business Administration University of Texas

Public Relations—WALTER WASKOM, Statistician, Southwestern Bell Telephone Company
JOHN A. SUTTON, Statistician, Texas Department of Public Safety

Boston

The officers of the Boston Chapter for 1959-60 are as follows:

President—PROFESSOR FREDERICK MOSTELLER, Harvard University

Vice-President—PROFESSOR DAVID DURAND, Massachusetts Institute of Technology

Secretary—MR. JOHN E. ALMAN, Boston University

Treasurer—MR. WILLIAM W. K. FREEMAN, Mutual Boiler and Machinery Insurance Company

At the April 21st meeting, Mr. Cuthbert Daniel of New York spoke on "Industrial Experience with Fractional Factorial Experiments."

The last meeting of the 1958-59 year was held on May 26th. Professor Arnold Soloway, Harvard University, discussed, "The Business Outlook" and Mr. Kenneth Berry, Director of Research for Babson's Reports, spoke on "The Stock Market Outlook."

Buffalo-Niagara

The Buffalo-Niagara Chapter was privileged to have Mr. Edward Dowd as speaker of the evening of March 12th. Mr. Dowd called upon his experience as statistician of the Roswell Park Memorial Institute to describe the application of a linear model to the analysis of non-orthogonal survey data obtained in a study of the relationship between emotional status of people and other personal characteristics.

The large number of categories obtained in the original survey necessitated collapse of the original 1344 classifications into a small number suitable for statistical analysis. Mr. Dowd discussed the techniques and problems associated with such a reduction, together with the difficulties involved in the solution of a set of 59 equations in 59 unknowns.

The discussion period which followed centered upon the difficulty of solution for non-orthogonal estimates of a large number of parameters and the need for precise definitions before the application of the mathematical model to the data.

A panel, composed of three well-known statisticians from the Niagara Frontier, discussed "The Use of the Computer in Modern Statistics" at the April 9th meeting of the Buffalo-Niagara Chapter.

Dr. Richard N. Schmidt, Chairman of the Department of Statistics and Insurance of the School of Business Administration of the University of Buffalo, pointed out that the emphasis being put upon the business data processing aspects of the computer is symptomatic of the early stages of the assimilation of this device into many business organizations. The major development in computer utilization will occur when mathematical models of business operations are tested with business data and then incorporated with the routine data processing runs for executive control and management by exception, long predicted as a consequence of computers.

Mr. Robert Matthias, Supervisor of Operations Analysis of the E. I. du Pont Co., described the advantages of a small scale computer. The lower cost of a small scale computer allows a certain freedom in operation and consequent greater availability to those with research problems. Ease of operation allows engineers and others to operate the computer and to depend

upon it in much the same way as they do their desk calculators, and with much more reliability.

Mr. Richard Bingham, supervising engineer of the Quality Control Branch of the Carborundum Corporation, treated various technical aspects of computers. More statistical tools are made available for use since the time to solution of a problem is shortened and consequently more complex procedures can be used. Various types of prepared statistical routines are available to statisticians. These can be copied or adapted to the statistician's own use in lieu of a completely original program for the computer. The advantages and disadvantages of such procedures were described.

A question and answer period followed which ranged over the entire area of the application of the computer to statistical analysis.

The results of the election of officers for the year 1959-60 were announced. They are:

President—Dr. RICHARD N. SCHMIDT, Chairman, Department of Statistics and Insurance, School of Business Administration, University of Buffalo

Vice-President—MR. ALFRED BLUMSTEIN, Research Physicist, Cornell Aeronautical Laboratory

Secretary-Treasurer—MR. JOHN ELWOOD DOWD, Senior Cancer Research Scientist Roswell Park Memorial Institute

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Chicago

The Chapter opened its 1959-60 season with a luncheon meeting on September 15th, at which Mr. William Tongue, Economist for the Jewel Tea Company, spoke on "An Economic Outlook for 1960." This was the first of 12 luncheon meetings planned for the year, half of which will be held jointly with the American Marketing Association.

Other plans for the 1959-60 year include continuation of the afternoon sessions held in conjunction with the dinner meetings. These afternoon sessions, usually devoted to a technical topic and informal in nature, were inaugurated last year and have worked out exceptionally well. Wesley D. Mitchell is organizing a committee and soliciting suggestions for the Seventh Midwest Conference, tentatively planned for a day in March 1960. The Chapter will try to again present a statistical review course, the general purpose of which is to review statistical ideas in order to enable chapter members and other interested individuals to become more proficient in the field. The monthly *Bulletin*, begun last year, has proved valuable and will be continued. In order to provide additional funds required for its publication, the Chapter's Board of Directors has voted to increase dues from $3.50 to $4.50 per year.

The last meeting of the 1958-59 season was held on June 2nd. At the afternoon session Mr. George Cloos, Federal Reserve Bank of Chicago, discussed the economic outlook. He pointed out that we are in a period in which our economy is experiencing a general rise. While there are several factors in the past increase which will tend to level off, he noted two factors—consumer buying and capital expenditures—which will tend to lead to further rise.

After the social hour and dinner the winners of the 1958-59 Forecast Contest were announced. These were Mrs. Geneva Thornberg and Mr. William W. Tongue. Members of the chapter were asked to make their forecasts of four key economic indexes for October 1959 and April 1960. The four indexes are total personal income, total civilian employment, industrial production (FRB Index), and wholesale prices (BLS index).

The speaker of the evening was Professor Hans Zeisel, Department of Sociology and Law School, University of Chicago. Professor Zeisel chose as his subject, "Statistics on Trial or A Statistical Legal Beagle." He discussed the applications of social science research to the law, including the investigation of such questions as: How does a jury function? What is the difference in cost between a jury trial and a bench trial? What is the effect in the final decision of the method of trial? The results of some of these investigations were presented, making the meeting a very interesting one.

New officers were elected at the June meeting. They are:

President—LAWRENCE R. STICKLER, R. R. Donnelley and Sons Co.

Vice Presidents—
Dinner Meetings: ROBERT L. SEIDNER, The Chicago American
Midwest Conference: WESLEY D. MITCHELL, Peoples Gas Light & Coke Co.
Luncheon Meetings: JOSEPH H. RABIN, Paper Mate Company
Membership: LAWRENCE V. CONWAY, American Savings and Loan Institute

Secretary—LOUIS S. DRAKE, Calumet and Hecla, Inc.

Treasurer—THOMAS D. BURKE, The Chicago Tribune

Cleveland

Dr. John D. C. Little, Assistant Professor of Engineering Administration at Case Institute of Technology, spoke on "Queuing and Traffic" at the September meeting.

The Chapter officers for 1959-60 are:

President—RICHARD SHAW, Mallory Battery Company

Vice-President and Program Chairman—CHARLES H. JOSEPH, JR., The World Publishing Company

Secretary and Treasurer—MORRIS DARNOVSKY, Market Research Services

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Connecticut

The annual meeting of the Chapter was held on May 19th at Yale University. The new officers elected at that meeting are:

President—Mr. ROBERT R. KIRKLAND, Southern New England Telephone Company

Vice-President—Dr. JOHN T. WALTER, Marketing Research Department, Olin Mathieson Chemical Corporation

Secretary-Treasurer—Mr. RICHARD A. GREENBERG, Division of Cancer and Other Chronic Diseases, Connecticut State Dept. of Health

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Dayton

The election of officers for the next year was held at the last meeting of the 1958-59 season. They are:

President—JOHN E. CONDON

Vice President—JOHN J. STANSBREY

Secretary-Treasurer—THERESA FRICKE

Detroit

"Inflation—Causes, Effects, and Cures" was the subject of a talk by George Hitchings, Manager, Economic Analysis Department, Ford Motor Company, at a meeting held on May 27th at the University of Michigan in Ann Arbor. Donald Cowan, Professor of Marketing, University of Michigan, was guest chairman for the meeting.

Milwaukee

Members and guests of the Milwaukee Chapter met in the West Building Auditorium of the Allis-Chalmers Company on the evening of April 16th for the fourth general meeting of the 1958-59 year. Dr. Eldo Koenig, Director of the Computer Department at Allis-Chalmers, spoke on "Computer Applications in Management Problems." A demonstration and explanation of two computers, a Pace Analog and an IBM 704, preceded the talk.

Montreal

The Chapter had its annual dinner meeting on Wednesday, May 20th. The guest speaker was Dr. John Stanley, Chairman of the Zoology Department of McGill University, who in a most interesting way outlined the problems that he tackled during the war in connection with OPERATION CROSSBOW.

Elections were held and the following slate of officers was elected:

President—Professor ROGER LESSARD, Ecole Polytechnique

Vice-President—MR. R. A. BANDEEN, Canadian National Railways

Secretary—MR. J. A. COOMBS, The Bell Telephone Company of Canada

Treasurer—MR. G. C. GIBB, Du Pont Company of Canada

Nebraska

The Nebraska Chapter closed its first year of operation with a meeting May 23rd at Offutt Air Force Base in Omaha, Nebraska. Mr. George Hessling of IBM described the IBM 650 RAMAC/Tape Computer. His address was followed by a discussion of applications of the IBM 650 to problems of the Strategic Air Command by Mr. Albert Prochnow of the Strategic Air Command.

Among the examples introduced by Mr. Prochnow were the application to deter-

mining frequency of aircraft collision and the use of the IBM 650 in maintaining personnel records. To facilitate rapid recording of personnel records, the IBM 650 installation at Strategic Air Command Headquarters is linked with regional headquarters by means of transceivers, so that personnel changes are available in Omaha in a matter of minutes after they have taken place, even in locations as far away as Guam.

The meeting was followed by a tour of the Strategic Air Command's computer facilities and lunch at the Offutt Air Force Base Officers' Club.

New York

A luncheon meeting was held on June 25th to introduce a new publication, *New York City Quarterly Sales Reports*, which is expected to provide information of value to market analysts and statisticians in the New York area. The publication is based on New York City sales tax returns. and will include data on the number of establishments and the total taxable and nontaxable sales by boroughs, by major business groupings and by more than 50 specific categories of business. Mr. Robert E. Johnson, Vice-Chairman of the Statistical Program Subcommittee of the Mayor's Advisory Council, chaired the meeting.

The first fall meeting, which was held on September 23rd, was devoted to the economic outlook. Professor Robert Kavesh, Graduate School of Business, New York University, was the speaker. Mr. Roger Williams, Union Carbide Corporation, was chairman.

Dr. Lincoln H. Day, Bureau of Applied Social Research, Columbia University, is the new editor of the Chapter's *Statistical News*. Dr. Day replaces Miss Mildred Lauder of the New York State Department of Labor, who has been editor for the past three and a half years.

North Texas

The following meetings were held by the North Texas Chapter of the American Statistical Association during the last two semesters:

September 26, 1958—Dan Brock, Statistician and Analyst, Dallas City Water Department—Sampling Techniques in the Study of Domestic Water Accounts.

October 31, 1958—Dr. Leroy Folks, Texas Instruments, Inc.—Exploration of Response Surfaces.

December 5, 1958—H. X. Brown, Chance Vought Aircraft, Inc.—The Use of Machine Computation Facilities in Quantitative Reliability Control Program.

January 15, 1959 (Joint meeting with American Society for Quality Control, Dallas-Ft. Worth Section, at Arlington, Texas) —Dr. E. F. Moore, Astrodyne Inc., McGregor, Texas—The Design of Experiments.

February 27, 1959—Dan C. McKown, Chance Vought Aircraft, Inc.—Survey of Methods of Finding Maximum Values Experimentally.

March 20, 1959—Sam Carroll, Texas Instruments, Inc.—Applications of Statistical Methods to Quality Assurance and Manufacturing Problems.

April 8, 1959—Dr. S. S. Wilks, Princeton University—Statistics and the Design of Experiments.

May 22, 1959—*Panel:* Alex Songayllo, Chance Vought Aircraft; Bob Burdine, Temco Aircraft; Leroy Folks, Texas Instruments, Inc.; Mack Usher, Texas Instruments, Inc.—Panel Discussion on *Shanin's Lot Plot Method.*

Philadelphia

Mr. Jerome Cornfield was the guest speaker of the Chapter on April 21st. His topic was "What Constitutes Medical Proof in Medical Research." He is Professor and Chairman of the Department of Biostatistics in the School of Hygiene and Public Health as well as Professor of Biomathematics in the School of Medicine at Johns Hopkins University. Previously he was on the staff of the Division of Research Services in The National Institutes of Health. Much of his work is in the improvement of medical research design.

Mr. Cornfield pointed out in his talk that proof in medical research is far more difficult than in the field of mathematics. Also, different conclusions can be reached from the same data. There is always the problem of ruling out other factors that may have caused disease such as cancer. While randomized experimental trials may be desirable, this is not always possible. Cases are often built for cause and effect after the fact. As an example, patients with lung cancer are questioned concerning their smoking habits after they have acquired the disease. There is no set of rules for determining "proof" and it is difficult to build a positive case because of the many factors that may be involved in the cause of a disease such as cancer.

The guest speaker of the Philadelphia Chapter of the ASA on May 27th, was Dr. Morris Cohen, who spoke on "Expectations and Predictability of Consumer Economic Behavior." Dr. Cohen is Senior Economist at the National Industrial Conference Board and is in charge of work in anticipatory statistics, particularly in consumption and investment expectations.

The results of his work on consumption expectations appear monthly in *Newsweek Magazine*, which has sponsored a project on consumer spending. The purpose of the survey is to find out relative changes in the major classes of consumer spending within the next six months. This is done on a scientific sampling basis. Interviews are made over the telephone. As long as the people being interviewed are convinced that the questions asked are not leading to a sales talk, they are inclined to be cooperative and usually talk about twenty minutes.

The project which is relatively new, has produced some accurate forecasts, particularly in the automotive field. Results for apparel have been less successful.

Elections were held in April and the following officers were selected for the next year:

President—Benjamin J. Tepping, National Analysts, Inc.

Vice-President—Stanley Schor, University of Pennsylvania

Secretary-Treasurer: Frederick N. Sass, Pennsylvania Railroad

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Rochester

The Chapter held its first annual dinner meeting May 6, 1959 at the University Club. The speaker was Rensis Likert, Director, Institute for Social Research, University of Michigan and President of the A.S.A. Dr. Likert's topic was "Management's Achilles Heel: Inadequate Data, Erroneous Impressions and Costly Mistakes." The talk stressed the fact that, from a productivity viewpoint, there is as much to be gained by carefully studying and maintaining human relations in a plant as there is to studying and maintaining equipment. Too often erroneous impressions are formed and costly mistakes made due to the fact that inadequate data are available on employee attitudes.

New officers for 1959-60 are:

President—Dr. Lionel W. McKenzie, Chairman, Department of Economics, University of Rochester

Vice-President—Mr. Donald A. Wright, Paper Service Division, B-36 Kodak Paper Works, Eastman Kodak Company

Secretary-Treasurer—Mr. A. Lester Lustik, Rochester Gas & Electric Corp.

St. Louis

The first meeting of the 1959-60 season was a luncheon meeting held on September 17th. Dr. A. Meyers, Jr., St. Louis University and Consultant to the St. Louis Police Department, spoke on "Application of Statistical Methods to Traffic Control." Dr. Meyers discussed sampling methods used in connection with parking violations and studies of the optimum physical locations for traffic control.

Other meetings are presently scheduled for October 15th and November 19th. At the October meeting Mr. Steve Best, Research Director, St. Louis County Juvenile Court, will speak on "Juvenile Delinquency —Some Statistical Implications." In November the Annual Forecasting Meeting will be held. Dr. Carl Dauten, Washington University, will be the speaker. There will be no meeting in December because of the holiday season.

The last luncheon meeting of the 1958-59 season was held on June 18th. Mr. Virgil Borders, Regional Director, National Conference of Christians and Jews, and Dr. Clement Mihanovich, Director of the Department of Sociology and Anthropology, St. Louis University, discussed the problems associated with migration and the adjustment of newcomers moving into a large metropolitan center, and described a proposed research project to isolate the important factors which help and hinder migrants from the rural south in their adjustment to urban living.

San Francisco

The San Francisco Chapter is planning an all-day meeting on October 16th at the downtown campus of the University of California Extension Division on the topic, "Forecasting and the Business Community." The tentative agenda provides for three speakers, two morning workshops and two afternoon panels. Professor William A. Spurr, Chairman of the Statistical Department, Stanford School of Business Administration, will open the meeting with a discussion of "The Current Status of Business Forecasting;" George P. Hitchings, Economist, Ford Motor Co., will be the luncheon speaker and will talk on "Forecasting Automobile Demand—A Look at 1960;" and W. R. Currie, Chief Financial Economist, Budgets, Division, California Department of Finance, will close the meeting with a discussion of "California Growth and Development to 1957 and Its Effect on Revenues." Morning workshops will be led by Charles Young, Economist, Weyerhaeuser Timber Co., and Francis Dresch, Stanford Research Institute. Harold Goldstein, Chief of the Division of Manpower and Employment Statistics, Bureau of Labor Statistics, and Marvin Lang, Development and Planning Economist, North American Aviation, Inc., will be the principal speakers at the afternoon panel sessions. Financial support from a number of business organizations makes it possible to hold registration fees to a minimum of $5, including luncheon. The meeting will be open to the general public.

The May meeting—the last of the 1958-59 season—was held on the campus of San Francisco State College. The speaker was Maurice I. Gershenson, Chief of the Division of Research and Statistics of the California Department of Industrial Relations and a member of the Technical Advisory Committee to the Bureau of the Census for Planning the 1960 Census of Population. Mr. Gershenson's address was devoted to an account of the meetings of the Advisory Committee, which he has been attending since December 1956, and included a discussion of the many problems taken up by the Committee. His observations also covered the plans for the new enumeration procedures to be used, the introduction of the new sampling plan, the new processing methods to be used, the new questions added and the plans for expanded tabulations. The talk was extremely well received and was followed by a lively question and answer period.

Southern California

At the May 28th dinner meeting, the speaker was Mr. Maurice I. Gershenson, Chief of the Division of Labor Statistics and Research of the California Department of Industrial Relations. Mr. Gershenson's subject was "Observations on Planning for the 1960 Census of Population."

Dr. Floyd L. Ruch, President, Psychological Service, Inc., of Los Angeles, spoke to the June 25th dinner meeting on the topic, "Predicting Human Behavior through Statistical Methods." During the business part of the meeting, the following new officers were elected:

President—CHARLES I. LANDENBERGER

Vice-President—ELLIOT F. BEIDEMAN

Secretary—WILLIAM HENDERSON

Treasurer—JAMES WILKINSON

The dinner meeting on July 30th heard Mr. Earl Wilkins, Chief Accountant, Automobile Club of Southern California, discuss "The Automobile Insurance Rating System through the Use of Applied Statistics."

The first fall meeting was held on September 25th. Mr. Max Dean, Resident Manager of the Statler-Hilton Hotel, spoke on "A New Role for the Innkeeper." At this meeting, Mr. Dean was presented the Speaker of the Year Award for the excellent talk he gave the Chapter last April.

Planning has begun for the Business Outlook Conference, sponsored jointly by the Southern California Chapter and the Los Angeles Chamber of Commerce Research Committee. The Conference is to be held January 13, 1960.

Virginia

The Virginia Academy of Science Chapter of the American Statistical Association plans to hold a joint meeting with the Richmond Section of the American Society for Quality Control in Lynchburg on October 24, 1959. It is planned to have two papers presented by members from each of the societies, the papers to be of an expository nature. This is the second of an annual series of joint meetings.

Washington

The last meeting of the 1958-59 year, held on May 27th, was devoted to the subject of Soviet social statistics. The speakers and their subjects were Robert J. Myers, Office of the Commissioner, Social Security Administration—"Social Security Statistics in the U.S.S.R.," and Morris B. Ullman, Foreign Manpower Research Office, Bureau of the Census—"Content of the 1959 All-Union Census of Population." Jacob Perlman, Office of Special Studies, National Science Foundation, and Michael K. Roof, Reference Department, Library of Congress, were discussants. The chairman of the meeting was Norman Lawrence, Foreign Manpower Research Office, Bureau of the Census.

The program was preceded by a business session, at which the following new officers were elected:

President—SEYMOUR WOLFBEIN, Deputy Assistant Secretary for Employment and Manpower, Department of Labor

Vice-President—ERNEST RUBIN, Bureau of Foreign Commerce, Department of Commerce

Executive Committee—IWAO M. MORIYAMA, National Office of Vital Statistics, Dept. of Health, Education and Welfare; TULO H. MONTENEGRO, Inter American Statistical Institute and Pan American Union; THOMAS N. E. GREVILLE, Office of the Quartermaster General, Department of Defense

Mr. Edwin D. Goldfield, Bureau of the Census, has been reappointed Secretary-Treasurer.

The Executive Committee has had an organization meeting and discussed possible topics for the 1959-60 meetings. The first meeting will be held late in October, and every month thereafter except December. Because of the national ASA meeting there will be no meeting of the Washington Statistical Society in December.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933 AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP MANAGEMENT, AND CIRCULATION OF **The American Statistician**, published 5 times yearly at Washington, D. C. for October, 1959.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Statistical Association, 1757 K Street, N.W., Washington 6, D. C.; Editor, Morris Hamburg, Dietrich Hall, University of Pennsylvania, Philadelphia, Pa.; Managing editor none; Business manager, Edgar M. Bisgyer.

2. The owner is: (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member must be given.) American Statistical Association, 1757 K Street, N.W., Washington 6, D. C.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

American Statistical Association.
by: Edgar M. Bisgyer, Office Manager.

Sworn and subscribed before me this 11th day of September, 1959.

Mary P. Windsor
Notary Public
(My commission expires April 14, 1964)

LETTER TO THE EDITOR

DEAR SIR:

I would like to add a few brief words to the "random balance" controversy and comment on the recent article by A. J. Polaneczky which appeared in THE AMERICAN STATISTICIAN.

I do not wish to come to the defense of the statistician of Mr. Polaneczky's story, for it is difficult to defend anyone who so worships at the shrine of balanced experimentation that he would require 42,738,257 experiments to study the effects of its ingredients on the taste of fish chowder. Neither do I agree with the cook, who made use of random number tables to choose the experiments, hoping that this randomness had eliminated counfounding of effects he wished to measure.

The major error committed by those who advocate the "random balance" approach is in their viewpoint, centering on the results to be expected from a random experiment and not on the results to be expected from the *particular* experiment chosen. Let us suppose that there are k factors of interest, that a complete factorial would require M experiments, and that n experiments are to be made, with n much smaller than M. The problem is to choose these n experiments from the M possible in some optimum fashion. The solution of the "random balancists" is to choose these n at random under possibly a few restrictions. It is hoped that these n experiments will form an optimum design in the sense that the important effects will be measured as well as possible.

Why leave it to chance? The only possible answer to this is that it is felt that somehow chance will come up with a better design than the statistician can find deterministicly. If this is so, and I very much doubt that it is, it only points out the inadequacy of the theory of the design of experiments. Certainly if N is much larger than n, the design determined in a non-random manner must include much complete and partial confounding, but so must the random design. As a statistician I feel much better if I have control over this confounding.

J. H. Stapleton,
Michigan State University

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THE PRESIDENT'S COLUMN—CONTINUED FROM PAGE ONE

of the new procedures or approaches that were born or "grew up" in this period. The pages carry advances in economics and econometrics, biology, social statistics, opinion polling, consumer preference and other marketing researches, the great strides in the physical and engineering sciences, psychology and psychometrics, studies in education and the training of statisticians, medicine, public health, vital statistics, demography, agriculture, business, industry, manufacturing (there is scarcely an area that is not in this record of methodology, theory and use of statistics).

The new index will be the same overall size as the JOURNAL and it will have a distinctive easy-to-read format. A special rate of $2.00 has been set to members of ASA. Others may purchase copies for $4.00 per copy. Since the JOURNAL articles cover such a wide spread in professional interests, enough copies will be printed to supply the demand anticipated from non-members. (Incidentally, copies of the 1888-1939 index are still available from the national office at no cost.)

The Association is deeply grateful to the Ford Foundation and the National Science Foundation for their aid in this project. Without this help it would not have been possible to do the index on such a complete scale. Special thanks go also to the staff of the Department of Statistics at VPI and to the Journal Index Committee, listed above, for their efforts in the actual indexing and compilation. Mr. Bisgyer, our Office Manager, will have immediate charge of the printing and design of the book.

DATA PLOTTING MACHINES—CONTINUED FROM PAGE THIRTY-EIGHT

might handle up to 1000 non-negative observations of not over 5 digits each. The different variables need not be collated nor punched in the same card.

If large-scale storage is not available, at least one preliminary pass is needed to determine the upper and lower limits of the variables. Then, to plot a frequency distribution, storage requirements are quite low, but to plot a scatter diagram they are high. Of course a cathode-ray tube could meet these storage requirements if the points were individually plotted and the image of each were electronically or photographically retained. The final result would be stored on a photographic negative. In my procedure, the initial storage is provided by up to 7575 digits of memory in a computer, and the permanent storage in punched cards or a print-out.

Considering the probable cost of any adequate single-purpose machine such as Hoffman requests, and its probably infrequent use, a better solution for most offices might be a modification of the procedures sketched above, making use of available computers, and either their print-off mechanisms or accounting equipment.

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